

UNITED STATES INTERNATIONAL TRADE COMMISSION  
WASHINGTON, D.C.

**In the Matter of**

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

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

**COMPLAINANT INTERDIGITAL'S PETITION FOR REVIEW OF THE  
FINAL INITIAL DETERMINATION**

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## I. INTRODUCTION

Complainants InterDigital Communications, Inc., InterDigital Technology Corporation, and IPR Licensing, Inc. (collectively “InterDigital”) seek review of certain discrete portions of the ALJ’s Initial Determination (“ID”) issued in this Investigation on June 28, 2013.

InterDigital brought this investigation on July 26, 2011. When the matter went to hearing in February 2013, InterDigital alleged infringement of 58 claims of 7 InterDigital patents by dozens of accused products sold for importation into the United States and/or imported into the United States by Respondents Nokia Corporation and Nokia, Inc. (collectively “Nokia”), Huawei Technologies Co., Ltd., Huawei Technologies (US) and Huawei Device USA, Inc. (collectively “Huawei”), and ZTE Corporation and ZTE (USA) Inc. (collectively “ZTE”) (Nokia, Huawei and ZTE are collectively “Respondents”). Respondents asserted many defenses, including non-infringement, invalidity, lack of domestic industry, license, and various additional defenses centered on the general allegation that InterDigital violated alleged commitments to be prepared to grant licenses to patents on fair, reasonable, and non-discriminatory (“FRAND”) terms and conditions. After considering all of the claims, defenses, evidence, and arguments, the ALJ issued a 448-page ID and found in InterDigital’s favor on almost every issue. But a bare handful of legal errors in the ID tipped the balance from what would have been, absent those few errors, a correct determination that each Respondent has violated Section 337.

InterDigital believes the ALJ correctly addressed the vast majority of the voluminous issues before him. For example, he correctly determined that InterDigital has established that there is a licensing domestic industry under Section 337(a)(3)(C) with respect to each asserted patent. InterDigital, which is based in Wilmington, Delaware and has facilities in Pennsylvania, New York, and California, has been a leader in the development of digital wireless

telephony since its founding in 1972, including the placement of the first digital wireless call to the FCC Chairman in 1985; the development and demonstration in 1997 of a broadband CDMA solution delivering video over five different wireless networks around the world; the development in 1999 and 2000 of a protocol stack for a 3G chipset used in over 350 million wireless devices worldwide; the development and launch of the first R6 HSPA baseband ASIC, known as SlimChip, in 2008; and the world's first demonstration of Wi-Fi over dynamically-selected TV white space in 2012. InterDigital continues to play a prominent role in the development of wireless technology, having spent more than \$650 million on a variety of research and development initiatives over the past decade. Consistent with the substantial (and mostly undisputed) evidence presented, and consistent with the Commission's previous determinations in Investigation Nos. 337-TA-601 and 337-TA-613, and by the Federal Circuit in *InterDigital Communications, LLC v. ITC*, 707 F.3d 1295 (Fed. Cir. 2013),<sup>1</sup> the ALJ correctly found that InterDigital made substantial investments in licensing activities in the United States, and that there is a nexus between InterDigital's substantial investments in such U.S.-based licensing activities and the particular patents asserted in this Investigation. InterDigital does not seek review of any aspect of the ID's determination relating to domestic industry.

After sorting through a mountain of licensing negotiation correspondence, negotiated licenses, fact testimony, and expert opinions, the ALJ also correctly found that Respondents had failed to establish any of their laundry list of defenses relating to InterDigital's FRAND commitments and other equitable defenses. The ALJ's multiple conclusions of fact and law relating to FRAND – including his findings that InterDigital complied with any FRAND obligations it might have, that InterDigital negotiated in good faith with Respondents, and that

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<sup>1</sup> In that controlling ruling, the Federal Circuit held that InterDigital's licensing activities present "a classic case for the application of sub-paragraph (C)." *InterDigital*, 707 F.3d at 1298.

InterDigital’s FRAND offers were not discriminatory – were correct and supported by the record. Accordingly, InterDigital does not seek review of the ID with respect to these defenses.<sup>2</sup>

Finally, the ALJ correctly rejected Respondents’ defense that they are licensed to four of the seven asserted patents under a 1994 agreement between InterDigital and Qualcomm Incorporated (“Qualcomm”) (“Qualcomm PLA”). The ALJ correctly found that Respondents failed to meet their burden of proving that Qualcomm’s exercise of its rights under the Qualcomm PLA in 1995 – over eighteen years ago – was somehow ineffective. The ALJ’s ruling that Respondents failed to prove their license defense is the only conclusion on this issue supported by the record. InterDigital does not seek review of the ID regarding Respondents’ license defense.

Although the ALJ thus correctly disposed of the majority of the issues before him, a handful of legal errors in connection with the construction and application of certain claim elements led him to reach fundamentally incorrect determinations concerning infringement and validity. One systemic methodological legal error in the ALJ’s claim construction analyses – importing extraneous limitations from the specification to unduly narrow the scope of a claim – accounts for most of the ID’s erroneous legal conclusions. Time and time again, the Federal Circuit has held that the plain meaning of a claim term may not be rejected based on the specification *unless* the specification clearly and unmistakably “reveal[s] a special definition” or “an intentional disclaimer, or disavowal, of claim scope.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (*en banc*). The ALJ violated that principle in three critical respects.

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<sup>2</sup> InterDigital does not agree with the ALJ’s observations in footnote 91 relating to a decision of a Chinese court that Respondents allege “set a FRAND rate for sales there.” But because the ALJ made no factual or legal findings regarding the Chinese court decision in footnote 91, and because the ALJ’s observations are *dicta*, InterDigital does not address them in this petition. If Respondents file a contingent petition for review of the ALJ’s FRAND-related findings, InterDigital reserves the right to substantively address footnote 91 in response.

## PUBLIC VERSION

First, in connection with U.S. Patent Nos. 7,706,830 and 8,009,636 (respectively, “the ’830 patent” and “the ’636 patent”; collectively, “the power ramp-up patents”), which are directed to inventions for rapidly establishing a communications channel with minimal interference, the ALJ imported limitations from the specification to give unduly narrow constructions to the related terms “successively sends transmissions” and “subsequent transmission.” Nothing in the intrinsic evidence clearly and unmistakably limits or disclaims the plain meaning of these terms, and the relevant extrinsic evidence, including the testimony of Respondents’ expert, Mark Lanning, indisputably supported InterDigital’s plain-meaning construction of those terms. The ALJ, however, erroneously imported limitations regarding the type and/or timing of the transmission from a preferred embodiment disclosed in the patent specification. Once this straightforward error is corrected, the ALJ agreed that the record establishes that Respondents’ accused products infringe the power ramp-up patents.

Second, in connection with U.S. Patent Nos. 7,502,406 and 7,706,332 (respectively, “the ’406 patent” and “the ’332 patent”; collectively, “the power control patents”), which address control of power levels in a CDMA system once a communication channel is established, the ALJ relied on examples from the specification to reach a legally erroneous and unduly narrow construction of the shared claim term “power control bit.” In accord with Respondents’ own expert, Tim Williams, who testified that a “bit” is commonly understood “as simply a representation of a piece of information that has two states,” InterDigital argued that the correct construction of the claim term “power control bit” is “binary information relating to power control.” The ALJ, however, significantly narrowed the scope of “power control bit” by importing without legal justification from the specification two additional limitations: first that each power control bit necessarily connotes single-bit information, and second that power

control bits are “transmitted at an APC data rate equivalent to the APC update rate.” Importation of such narrowing limitations, absent either “a special definition” or “an intentional disclaimer, or disavowal, of claim scope” is impermissible and constitutes legal error. As with the power ramp-up patents, the ALJ found that, if this term were construed in the manner urged by InterDigital, then the accused devices would infringe the asserted claims. Moreover, the ALJ failed to recognize that at least the accused devices that operate under a particular 3G data standard called CDMA2000 infringe even under his erroneous construction. Thus, under a correct construction, all accused devices should be found to infringe, and even under the ALJ’s erroneous construction, at least the accused CDMA2000 devices infringe.

Third, in connection with U.S. Patent No. 7,616,970 (“the ’970 patent”), which addresses operation of a subscriber unit (such as a cellular telephone) in two different wireless modes (typically a localized high-speed network such as Wi-Fi on the one hand and a cellular network on the other), the ALJ made an equally fundamental legal error. The ALJ correctly construed the disputed claim term “a plurality of physical layer channels are available for assignment” to mean “two or more physical layer channels *allocable by the subscriber unit* for data communication.” This correct construction is dictated by the specification’s description of “the present invention” – language that (as the Federal Circuit has repeatedly explained) is sufficiently clear and unmistakable that it limits the scope of the claim terms. *Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1308 (Fed. Cir. 2007). The ALJ’s construction recognized that in the ’970 patent channels are allocated or assigned *by the subscriber unit*, an innovation that improved speed and efficiency of channel assignments over prior art systems where channels are assigned by the base station. Applying this correct construction in his infringement analysis, the ALJ correctly determined that the accused devices infringe the ’970

patent. In his validity analysis, however, the ALJ applied a different and erroneous construction.<sup>3</sup> In wrongly finding that the asserted claims are invalid, the ALJ applied a construction where assignment of physical layer channels is done *by the base station* not by the subscriber unit. In so doing, the ALJ erroneously broadened the claims to include prior art that, in fact, operates in the opposite way claimed by the inventors of the '970 patent. InterDigital seeks review and correction of this error and a determination that the asserted claims of the '970 patent, which were found to be infringed, are *not* invalid.<sup>4</sup>

## II. ISSUES FOR WHICH INTERDIGITAL SEEKS REVIEW

1. The ALJ committed legal error in construing the related terms “successively sends transmissions” in each of the power ramp-up patents and “subsequent” transmission in the '636 power ramp-up patent by disregarding their plain meanings and importing limitations from the patents' specification to define the terms. As a result, the ALJ erroneously determined that the accused products do not infringe the asserted claims.
2. The ALJ committed legal error in erroneously construing the claim term “power control bit” in the power control patents by disregarding its plain and ordinary meaning and by importing limitations from the patents' specifications to define the term. As a result, the ALJ erroneously determined that the accused products do not infringe the asserted claims.
3. After correctly construing the asserted claims of the '970 dual-mode subscriber unit patent and applying that correct construction in his infringement analysis, the ALJ

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<sup>3</sup> The ALJ committed legal error both by misconstruing the claims and by applying different claim constructions in his infringement and invalidity analyses. As the Federal Circuit has repeatedly held, “It is axiomatic that claims are construed the same way for both invalidity and infringement.” *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1330 (Fed. Cir. 2003); *see also Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1351 (Fed. Cir. 2001) (“Because the claims of a patent measure the invention at issue, the claims must be interpreted and given the same meaning for purposes of both validity and infringement analyses.”).

<sup>4</sup> The ALJ also committed legal error by misconstruing each of the asserted claims of U.S. Patent Nos. 7,970,127 and 7,536,013 by determining they are not infringed and invalid. Although InterDigital believes that the ALJ committed legal error in connection with these determinations, InterDigital does not seek review of the ID as it relates to these asserted patents. Similarly, the ID contains certain additional erroneous legal and clearly erroneous factual determinations with which InterDigital disagrees. To streamline this review and lessen the Commission's burden, and because reversal of such errors is not necessary to find that each of the Respondents have violated Section 337, InterDigital does not seek their review in this Petition. InterDigital, does not concede, however, the correctness of such determinations and reserves the right to make necessary arguments in other forums where they may be relevant.

committed legal error by applying a different, erroneous, and impermissibly broad construction of the term “a plurality of physical layer channels are available for assignment” when analyzing validity. As a result, the ALJ erroneously found the claims of the '970 patent invalid.<sup>5</sup>

### III. TECHNOLOGY BACKGROUND

In the field of digital wireless communication, researchers constantly search for ways to more efficiently utilize limited availability frequency resources while minimizing interference among devices operating on the available frequencies. In the current wireless environment, where high-speed data communication (such as wireless internet access and communication of digital photographs, music, and even video) is in ever greater demand, measures to maximize frequency spectrum efficiency and minimize interference are ever more important. The inventions of the power ramp-up and power control patents generally operate within a system that uses Code Division Multiple Access (“CDMA”) to allow multiple cellphones (referred to as “subscriber units”) within a certain geographical area to use the same portion of the radio frequency spectrum simultaneously. Unlike its predecessor systems, CDMA does not separate communications from different subscriber units by assigning them different time slots or different frequencies on the radio frequency spectrum. Instead, it assigns a unique code to each communication link, which is known as a CDMA channel. That code is then used to encode and decode the data-carrying signal that conveys the cellular messages between the cellphone and the base station. The encoding process allows data signals from multiple sources to be transmitted at the same time and over the same frequency, while enabling the base station to use the special codes to separate the data signals from each source for further processing.

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<sup>5</sup> Each of the forgoing require review pursuant to Commission Rule 210.43(b)(ii). 19 C.F.R. § 210.43(b)(ii). See *Certain Wiper Blades*, Inv. No. 337-TA-816, Notice of Commission Decision to Review an Initial Determination Granting Summary Determination, and on Review Reversing the Grant of Summary Determination (Feb. 15, 2013) (reviewing and reversing claim construction where ALJ imported limitations into claims from specification without justification and vacating determination of non-infringement).

## PUBLIC VERSION

A CDMA system is able to use a single portion of the frequency spectrum for multiple simultaneous communications by using a process known as “spreading.” Each subscriber unit’s baseband data signal (the signal that carries the telephonic communications) is multiplied by a code sequence, called the “spreading code,” which has a much higher rate than the data. In other words, the spreading code modifies the data signal so that the modified signal is transmitted at a faster rate and contains more information. That process results in a much wider transmission spectrum than the spectrum of the baseband data signal, which enables the system to carry multiple communications over the same frequency at the same time and allows the base station to more easily extract the constituent baseband data signals.

One problem associated with such a cellular system is that signals within the same geographical area can interfere with one another, causing data loss. To combat that problem, and to speed up the process of placing a call and reduce unnecessary power consumption, the asserted ’830 and ’636, or “power ramp-up,” patents teach a short code strategy for establishing contact with a base station to initiate a cellphone call. This strategy uses short codes that can be detected more quickly by a base station. The use of short codes allows the cellphone to establish a communication channel more quickly, allows the cellphone to ramp up its power at a faster rate (and thus, reduces the time needed to reach the correct power level), and minimizes interference by preventing the cellphone from overshooting the correct power level. As taught by the ’830 and ’636 patents, the cellphone transmits a short code at a power level lower than that needed for detection by the base station. The cellphone continues sending short codes at successively higher power levels. Once the power level reaches the point where the base station detects a short code transmission, the base station sends an acknowledgement to the cellphone. Having

determined the power level needed for detection, the cellphone sends a call setup message. The base station then assigns a channel to the cellphone over which the call can take place.

A second way to minimize interference between signals in the same geographical area and reduce attendant data loss is to control transmission power levels after establishing a communications channel. InterDigital's '406 and '332, or "power control," patents teach and claim a method or apparatus for controlling transmission power levels where subscriber units and base stations inform each other whether to alter transmission power. Under the '406 patent, subscriber units receive one or more power control bits (*e.g.*, up or down commands) from a base station and adjust the power level to transmit traffic and control channels, using only the power necessary to transmit. Under the '332 patent, a subscriber unit generates power control bits and includes the power control bits on only one of two particular channels, reducing interference.

The invention of the '970, or "dual-mode subscriber unit," patent is a novel way to maximize bandwidth efficiency among cellular signals in the same area by utilizing a dual-mode subscriber unit. The '970 patent teaches and claims improvements to a subscriber unit that can communicate data using both short-range, high-speed networks (such as WiFi or WLAN) and long-range, lower-speed wireless networks, such as CDMA or other cellular networks. The '970 patent teaches that the dual-mode subscriber unit assigns itself one or more CDMA channels, depending on, for example, the desired speed for sending or receiving information – sometimes called the "data transfer rate." However, the CDMA channels need not be allocated during the entire communication session, but rather only during that portion of the communication session when the user is sending or receiving data, thereby freeing up cellular bandwidth for other subscriber units. Moreover, because the dual-mode subscriber unit supports

WLAN communication, when WLAN is detected the subscriber unit can communicate data via the WLAN, thereby making the cellular bandwidth available for use by other subscriber units.

#### IV. THE POWER RAMP-UP ('830 AND '636) PATENTS

The ALJ correctly construed all but two of the disputed terms of the asserted power ramp-up patents. The ALJ erred on these two related claim terms by importing limitations from the patents' shared specification, despite the strong intrinsic and undisputed extrinsic evidence to the contrary. The two claim terms that were erroneously construed are "successively sends transmissions" ('830 and '636 patents) and "subsequent transmission" ('636 patent). Properly construed, Respondents' WCDMA Accused Products<sup>6</sup> infringe all ten of the asserted claims in the '830 and '636 patents.

But even under the ALJ's erroneous construction of the term "successively sends transmissions," which he construed as "sends codes shorter than a regular length code one after the other," (ID at 23), the Respondents' WCDMA Accused Products infringe the '830 asserted claims. [REDACTED]

[REDACTED] When analyzing infringement, however, the ALJ erred by further restricting his construction, and interpreting "code" as limited to a code that is "not modulated by data." ID at 53-54.<sup>7</sup> In so doing, the ALJ not only injected an additional improper limitation into the construction, but he ignored the Federal Circuit's recent decision in the appeal of Inv. No. 337-TA-613 ("613 Appeal"), which held that the term "code," as used in this family of patents, means "a sequence of bits" or "a sequence of chips." *InterDigital Commc'ns, LLC v. ITC*, 690

<sup>6</sup> See ID at 44, citing CX-1309C (Jackson WS) at Q787-817.

<sup>7</sup> The ALJ's reinterpretation of his construction, as borne out in the subsequent infringement analysis, is reviewed *de novo* as a matter of claim construction. See, e.g., *Intervet, Inc. v. Merial Ltd.*, 617 F.3d 1282, 1287-90 (Fed. Cir. 2010).

F.3d 1318, 1324 (Fed. Cir. 2012) (reversing finding of no violation).<sup>8</sup> As a result, even after finding that [REDACTED] (and thus, a “code” under the Federal Circuit’s construction), (ID at 46), the ALJ nevertheless found that it is not a “code” (and thus, not a “transmission”). ID at 53-54. [REDACTED]

[REDACTED]

The ALJ’s construction is also erroneous because it improperly restricts the plain meaning of the word “transmissions,” which means “RF emissions” or signals, to “codes shorter than a regular length code.” ID at 23. Based on his erroneous construction, the ALJ found that Respondents’ WCDMA Accused Products do not meet the “transmissions” limitation. The ALJ correctly found, however, that if InterDigital’s construction were adopted, the WCDMA Accused Products would meet this limitation, and would thus infringe the ’830 asserted claims. [REDACTED]

[REDACTED]

The ’636 asserted claims require that the subscriber unit send a “subsequent transmission” after receiving an indication that a “successively sent transmission” was detected. The WCDMA Accused Products meet this limitation because [REDACTED]

[REDACTED] In addition to importing the same restrictive “code not modulated by data” limitation into the construction of this term, the ALJ imported a requirement that this particular transmission be sent “during power ramp-up.”

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<sup>8</sup> In the 613 Appeal, the Federal Circuit reversed the Commission for the same error InterDigital contends was made here, importing limitations from the specification. *InterDigital*, 690 F.3d at 1324 (“Neither the specification nor the prosecution history contains a restrictive definition of ‘code,’ and the patentee did not at any point disavow the broader interpretation of that term.”).

ID at 37. Based on this impermissible rewriting of the claim language, the ALJ found that the WCDMA Accused Products do not meet the “subsequent transmission” limitation. ID at 58. As with the “successively sends transmissions” term, however, the ALJ ruled that the WCDMA Accused Products would meet this limitation under InterDigital’s construction. ID at 66.

As shown below, the ALJ committed legal error in construing the “successively sends transmissions” and “subsequent transmission” terms. Once the correct constructions are adopted, the ID’s factual findings establish that the WCDMA Accused Products infringe the ’830 and ’636 asserted claims.

**A. Overview of the Power Ramp-Up Patents**

**1. Code Division Multiple Access (CDMA)**

As noted in Section III (Technology Background) above, CDMA systems allow multiple subscriber units in the same vicinity to use the same portion of the RF spectrum simultaneously by assigning a unique code to each communication link, or CDMA channel. Before the subscriber unit can transmit data, its baseband data signal must be multiplied by a “spreading code,” which encodes the data signal so that it can be identified separately and uniquely from the data signals of other cellphones. The spreading code consists of chips.<sup>9</sup> The figures below illustrate the spreading process.

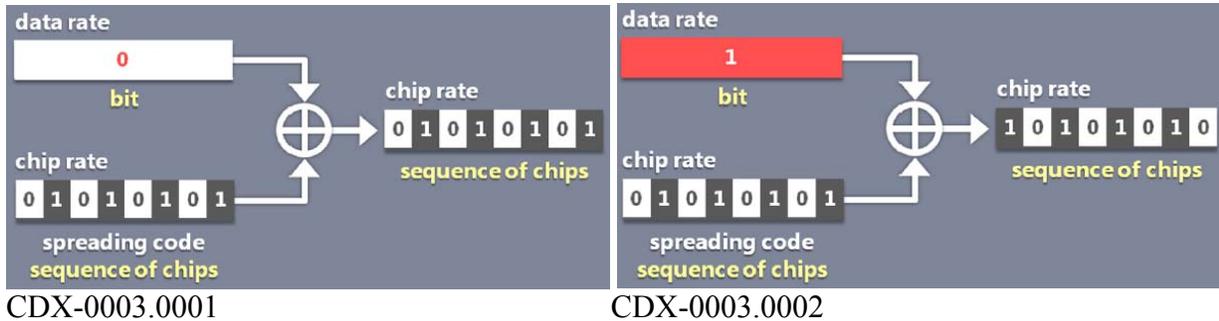
The spreading code shown here is a sequence of eight chips – “01010101.” To “spread” a 0 bit, each chip of the spreading code is applied to a specific type of logic gate, called an exclusive OR (XOR),<sup>10</sup> with the 0 data bit. The output is identical to the input spreading

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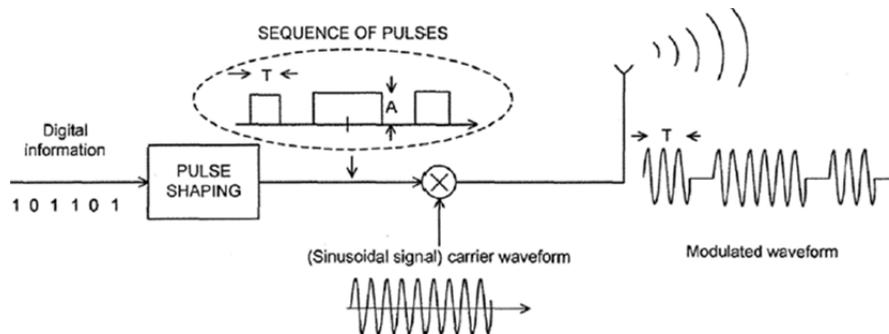
<sup>9</sup> A “chip” is binary data transmitted at a chip rate, or speed. *See InterDigital*, 690 F.3d at 1324.

<sup>10</sup> An XOR gate outputs a 1 if the inputs are different (i.e., 0/1 or 1/0), and outputs a 0 if they are the same (i.e., 0/0 or 1/1).

code. To “spread” a 1 bit, each chip of the spreading code is XOR’d with a 1. The output is the inverse of the input spreading code. CX-1309C at ¶¶ 511-514.



To transmit a spread signal over the air on the RF spectrum, a CDMA handset has to convert or modulate the digital signal (called “up-conversion” when transmitting) to an RF signal. The figures below illustrate a simple up-conversion technique. In this example, the transmitter converts a sequence of chips – “101101”– into a sequence of pulses. These pulses are applied to an RF carrier signal (a sinusoidal waveform). The technique shown here is called amplitude modulation where a pulse representing a 1 does not change the amplitude of the RF carrier, while a pulse representing a 0 changes its amplitude to 0. *Id.* at ¶¶ 515-517.



CDX-0003.0003.

## 2. The Power Ramp-Up Patents

The '830 and '636 patents teach improved techniques for establishing a communication channel with a CDMA network when making a phone call. This process is

called a “random access procedure.” In a preferred embodiment, the cellphone establishes contact with a base station to initiate a call by transmitting a short code at a power level known to be below the power level needed for detection by the base station. JX-0006 (’830 Patent) at 10:19-24. The cellphone continues transmitting short codes at increasing power levels until it receives an acknowledgement from the base station. *Id.* After receiving the acknowledgement, the cellphone sends a longer call setup message. *Id.* at 10:39-43. Both the short codes and the message are produced using portions of the same code. *Id.* at 10:3-11. This approach allows cellphones to place calls quickly, with less interference and power consumption. *Id.* at 3:31-34.

**B. The ALJ Erred by Failing to Recognize that the Accused Products Infringe the ’830 Patent Even Under His Erroneous Construction of “Transmissions”**

Even under the ALJ’s erroneous construction of “transmissions” – “codes that are shorter in length than a regular length code” – *the Accused WCDMA Products infringe* the asserted claims of the ’830 patent. The ALJ found no infringement because he applied an erroneous construction of the unadorned term “code,” which he had used in his construction of “transmission” to mean a code that is “not modulated by data.” *Id.* at 53-54; *see also id.* at 93 (“The adopted constructions make clear that the claimed ‘transmissions’ comprise codes which ... are not modulated by data.”). This interpretation of claim scope was erroneous. *Intervet, Inc.*, 617 F.3d at 1287-90 (interpretation of construction, as borne out in subsequent infringement analysis, is reviewed *de novo* as a matter of claim construction).<sup>11</sup>

In the 613 Appeal, concerning related patents that share a common specification with the ’830 and ’636 patents, the Federal Circuit held that a “code” is simply “a sequence of

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<sup>11</sup> *See also Telcordia Tech., Inc., v. Cisco Sys., Inc.*, 612 F.3d 1365, 1372-74 (Fed. Cir. 2010) (*de novo* review where patentee agreed with the district court’s construction but challenged the court’s understanding of that construction because “the district court apparently meant” something more limiting); *In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 1325 (Fed. Cir. 2011) (*de novo* review where parties “[did] not disagree with the court’s construction” of the claim term, but disagree[d] about the meaning of the court’s construction”).

bits” or “a sequence of chips.” *InterDigital*, 690 F.3d at 1324. The ALJ’s unduly narrow construction of “code” as “code not modulated by data” contradicts the Federal Circuit’s express ruling that overturned the Commission’s prior construction of the term “code.” *Id.* at 1326. Because the Federal Circuit ruled on claim terms of patents derived from the same parent application, and sharing the same specification, as the ’830 and ’636 patents, its constructions:

- (1) ***must be applied consistently***, *NTP, Inc. v. Research in Motion, Ltd.*, 418 F.3d 1282, 1293 (Fed. Cir. 2005) (“Because NTP’s patents all derive from the same parent application and share many common terms, we must interpret the claims consistently across all patents.”); *Omega Eng’g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1334 (Fed. Cir. 2003) (same); and
- (2) ***must be applied in this proceeding***. *Amgen, Inc. v. Hoffmann-LaRoche Ltd.*, 494 F. Supp. 2d 54, 60–61 (D. Mass. 2007) (Federal Circuit’s constructions are binding and trial courts may not deviate); *Pass & Seymour, Inc. v. Hubbell Inc.*, 2011 U.S. Dist. LEXIS 1135, at \*4 (N.D.N.Y. 2011) (“[D]istrict courts are bound to apply the Federal Circuit’s claim constructions, even as against non-parties to the initial litigation.”).

Nothing in the Federal Circuit’s discussion of short codes in a preferred embodiment of the shared specification says that the short codes cannot be modulated by data or otherwise suggests the inventors intended to disclaim transmissions of codes modulated by data. *InterDigital*, 690 F.3d at 1326. The Federal Circuit instead expressly ruled that the intrinsic evidence (including the specification at issue here) lacks a restrictive definition or disclaimer.

Neither the specification nor the prosecution history contains a restrictive definition of “code,” and the patentee did not at any point disavow the broader interpretation of that term.

*Id.* at 1324 (holding construction erroneous and reversing Commission finding of no violation).

The Federal Circuit adopted the plain meaning without adopting the “not modulated by data” limitation imported by the ALJ. *Id.*<sup>12</sup> Thus, accepting the ALJ’s construction of the term

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<sup>12</sup> The extrinsic record confirmed that that a code may ***or may not*** be modulated by data. *See* Tr. (Lanning) at 1083:24-1084:2 (“A code can either be modulated by data or not modulated by data.”); *id.* at 1083:7-11 (“[T]he plain meaning of the word ‘code’ to one of skill in the art in the cell phone communications art is a sequence of bits or a sequence of chips.”). Moreover, the

“transmissions” as “codes that are shorter than a regular length code,” those “codes” are merely “a sequence of chips.”

When the Federal Circuit’s controlling construction of the word “code” is applied to the ALJ’s construction of the disputed claim term, the [REDACTED] [REDACTED] are “successively sent transmissions” and consequently the Accused WCDMA Products infringe the asserted ’830 patent claims. The operation of the accused products is undisputed in all material aspects. [REDACTED] [REDACTED]

[REDACTED] [REDACTED]  
[REDACTED]  
[REDACTED] [REDACTED]  
[REDACTED] [REDACTED]  
[REDACTED]  
[REDACTED]

Thus, when the ALJ’s erroneous construction is correctly applied, the PRACH preambles are “successively sent transmissions.” For this reason, the Accused WCDMA Products infringe the asserted ’830 patent claims.

**C. The ALJ Erred in Construing the Term “successively sends transmissions” as Limited to “codes that are shorter than a regular length code”**

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prosecution history confirms that the subject invention includes transmissions of codes modulated by data. During prosecution of the ’830 and ’636 patents, the PTO found that “Dent (US 5,430,760) discloses a wireless code division multiple access (CDMA) subscriber unit comprising a transmitter such that when the subscriber unit is first accessing the network, the transmitter successively sends transmissions ... .” CX-1546 (’830 Notice of Allowance) at 3; CX-1547 (’636 Notice of Allowance) at 2. It is undisputed that the “successively sent transmissions” of Dent comprise codes modulated by data. Resp. Br. at 354 (“[T]he random access messages [of Dent] contain data that has been scrambled and spread before transmission.”) (citing RX-0248 (Dent 760) at 3:2-5, 3:24-27, 11:13-16).

Even though, as explained above, the Accused WCDMA Products infringe when the ALJ's construction of "transmissions" is correctly applied, the fact remains that the ALJ's construction is legally erroneous. More specifically, there is no dispute that "successively sends" means "sends one after the other." ID at 23. The sole dispute is over the proper construction of "transmissions." *Id.* The ALJ incorrectly construed "transmissions" as "codes that are shorter than a regular length code." This construction departs from the undisputed plain meaning of "transmissions." Tr. 1080:3-14. And nothing in the intrinsic evidence either provides any special meaning or clear disclaimer that could justify that departure.

**1. Neither the Plain Meaning Nor the Intrinsic Evidence Justifies Construing the Claim Term "transmissions" as "codes that are shorter than a regular length code"**

InterDigital's proposed construction of "successively sends transmissions" is simply "sends transmissions one after the other." ID at 22. It was agreed that "successively" means "one after the other," and InterDigital proposed that the term "transmissions" be given its plain meaning. ID at 24. Both sides' experts agreed that the plain meaning of "transmissions" is "RF emissions." Tr. (Lanning) at 1080:3-17; CX-1309C (Jackson WS) at ¶¶ 694, 696-697. In other words, "transmissions" simply refers to the RF emissions or signals that are emitted from the cellphone's antenna.

There is a "heavy presumption" that claim terms are given their plain meaning absent a clear and unmistakable disclaimer in the specification or the prosecution history. *Epistar Corp. v. ITC*, 566 F.3d 1321, 1334 (Fed. Cir. 2009) ("A heavy presumption exists that claim terms carry their full ordinary and customary meaning, unless it can be shown the patentee expressly relinquished claim scope."). Any departure from the plain meaning cannot be upheld unless it is based on "expressions of manifest exclusion or restriction, representing a clear

disavowal of claim scope” from the inventors. *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002). No such basis exists here.

First, there is no express relinquishment of claim scope in this intrinsic record, as would be required to narrow the plain meaning of the claim term “transmissions.” It is undisputed that, in the field of cellular communications, there are transmissions that are not codes but rather, are other forms of RF emissions or signals. *See, e.g.*, CX-0330; Tr. (Lanning) at 1080:3-17. And neither the specification nor the prosecution history clearly defines the transmissions as “codes that are shorter than a regular length code,” and neither clearly disclaims transmissions other than “codes that are shorter than a regular length code.”

The ID is notable for its failure to acknowledge that the law requires an express relinquishment or clear disavowal of claim scope, much less identify any language in the intrinsic evidence that could satisfy that legal standard and overcome the heavy presumption in favor of plain meaning. *See* ID at 22-25.

Instead the ALJ improperly relied on teachings in the specification regarding “a preferred embodiment,” (ID at 23), and his finding that “[a]t no point does the specification indicate that the claimed transmissions are generalized ‘RF emissions.’” ID at 24. But that gets the legal standard completely backwards. The patentee is not required to identify the plain meaning of claim terms in his patent. Instead, the patentee is required to expressly state if he or she intends to *disclaim* a term’s plain meaning. The ALJ’s analysis improperly turns the burden of departing from the plain meaning on its head. *See Linear Tech. Corp. v. ITC*, 566 F.3d 1049, 1058 (Fed. Cir. 2009) (affirming Commission’s refusal to limit scope of claims to embodiments disclosed in specification). The ALJ thereby violated the basic rule of claim construction that “the specification ... cannot be used to narrow a claim term to deviate from the plain and

ordinary meaning unless the inventor acted as his own lexicographer or intentionally disclaimed or disavowed claim scope.” *Aventis Pharms. Inc. v. Amino Chems. Ltd.*, 2011-1335/1336, 2013 U.S. App. LEXIS 10007, at \*19 (May 20, 2013). By relying on descriptions of a preferred embodiment (including the experts’ and Federal Circuit’s discussion of that preferred embodiment, ID at 23-24), the ALJ committed legal error. *Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1354 (Fed. Cir. 2012) (“While claim terms are understood in light of the specification, a claim construction must not import limitations from the specification into the claims.”).

One portion of the intrinsic record, apparently overlooked by the ALJ, refutes his finding and confirms that the term “transmissions” must be given its ordinary meaning, which encompasses RF emissions or signals. The original application to which the power ramp-up patents claim priority includes a claim to “[a] method for controlling transmission power during the establishment of communications between a base station and at least one subscriber unit.” RX-0478 at NK800IDC06443975.<sup>13</sup> As part of this method, the original claim recites “transmitting a periodic *signal* from said subscriber unit at an initial predetermined power level; increasing said power level at a predetermined ramp-up rate; [and] ... transmitting a signal from said base station confirming that said periodic *signal* was detected.” *Id.* Thus, the specification, by way of the originally-filed claims, expressly 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.” Respondents may argue that the disclosed embodiments successively send “short codes” (the preambles) that are shorter in length than a longer code (called an “access code”). This argument was apparently the ALJ’s basis for stating

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<sup>13</sup> The original claims of a patent application are part of the specification. *Crown Packaging Tech., Inc. v. Ball Metal Beverage Container Corp.*, 635 F.3d 1373, 1380 (Fed. Cir. 2011).

that “at no point does the specification indicate that the claimed transmissions are generalized ‘RF emissions,’ as proposed by InterDigital.” ID at 24. As explained above, the specification in fact *expressly* discloses transmitting “signals.”

In short, nothing in the intrinsic evidence justifies substituting the plain meaning of “transmissions” with the ALJ’s narrower construction of “codes that are shorter than a regular length code.” This incorrect construction should be reversed. And, as the ALJ correctly found, under InterDigital’s proposed construction, the accused products satisfy this element. ID at 54.

**2. The Specification Supports InterDigital’s Plain-Meaning Construction of “transmissions”**

In a single sentence, the ALJ states that “if the terms ‘successively sent transmissions’ ... were interpreted to cover transmission of a code modulated by data, it is determined that such an interpretation would not be supported by the specification, for the same reasons discussed above with respect to the construction of the claims.” ID at 93. Respectfully, the ALJ is wrong and the specification fully supports InterDigital’s proposed construction.

A claim term is adequately supported by the written description when the specification “reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date.” *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010). As an initial matter, the ALJ’s statement is inconsistent with the Federal Circuit’s prior rulings on related patents. The short code “transmissions” in those patents were claimed as “signals” and construed as transmitted “codes.” RX-3684C (613 Investigation ID) at 37. Despite explicitly observing that the short codes in a preferred embodiment are not modulated by data, the Federal Circuit adopted the broad plain meaning of “code,” i.e., a sequence of bits or chips. *InterDigital*, 690 F.3d at 1324, 26. The Federal Circuit

did not import the “not modulated by data” limitation, and did not suggest that the specification lacked support for the broad plain meaning. *Id.*

Next, the ALJ incorrectly suggested that under InterDigital’s construction the term “transmissions” can be “*generalized* ‘RF emissions.’” ID at 24. This is not so. Claim terms must be interpreted within the context provided by surrounding claim language, not in a vacuum. *ACTV, Inc. v. Walt Disney Co.*, 346 F.3d 1082, 1088 (Fed. Cir. 2003) (“While certain terms may be at the center of the claim construction debate, the context of the surrounding words of the claim also must be considered ....”). The surrounding claim language here places several specific limitations on the claimed “transmissions” that take them out of the realm of “generalized ‘RF emissions,’” and into the realm of specific RF emissions or signals. That context includes the following: (1) the “transmissions” must be sent to initiate communication with a base station; (2) the “transmissions” must be detectable by a base station; (3) the handset must receive an acknowledgment before sending the “message” or “subsequent transmission”; (4) each “transmission” must be shorter than the “message” or “subsequent transmission”; and (5) each “transmission” and the “message” or “subsequent transmission” must be produced using portions of a same sequence of chips. JX-0006 (’830 Patent) at Claim 1; JX-0007 (’636 Patent) at Claim 1. Thus, the ALJ failed to consider the proper scope of the term in context.

The specification conveys that the inventors possessed exactly what the claim requires – sending transmissions (e.g., short code transmissions) one after the other. The ALJ overlooked uncontested testimony that the specification *did* disclose the invention under InterDigital’s claim construction, including the expert testimony of Drs. Jackson and Haas, which establishes that whether the short codes are modulated by data is a matter of design choice. *See* CX-1309C (Jackson) at ¶ 1118 (person of ordinary skill in the art would know that if

“one were to modify the short code or access code sent by the subscriber unit, such as by ‘modulating it with data,’ one would have to make corresponding modifications to the base station reflecting those changes”); CX-1524C (Haas) at ¶ 319 (“[T]he specific implementation details as to how a short code is generated is a matter of design choice”). Their testimony bears directly on whether the term “transmissions” is supported under InterDigital’s construction. *Amgen*, 314 F.3d at 1330 (adequate written description where “those of ordinary skill could ‘easily’ figure out [the differences] in methodology”) It is precisely this sort of implementation, or design option, that patent claims are meant to cover. Dr. Jackson’s and Dr. Haas’s testimony was *uncontested* at the hearing and the record evidence on this point is thus undisputed. *Compare* CX-1309C (Jackson) at ¶¶ 1116-1118, *with* Resp. Br. at 293 (citing RX-3526 (Lanning) at ¶ 71-95).<sup>14</sup>

If there is any remaining doubt, the primary references asserted by Respondents for invalidity – the IS-95-A standard (“IS-95”) and U.S. Patent No. 5,430,760 (“Dent”) – further confirm that successively sending transmissions of codes modulated by data was a design option within the knowledge of persons of ordinary skill in the art. Both references are cited on the faces of the power ramp-up patents. JX-0006 (’830 patent) at 2, 6. IS-95-A was developed by the telecommunications industry in the 1990s as “a standard for interoperability of CDMA networks and products.” ID at 75; *see also* RX-3526C (Lanning) at Q204 (“IS-95-A is one of the most ubiquitous systems in the history of wireless telecommunications ... [it] was the system used by carriers such as Verizon and Sprint”). There is no dispute that IS-95 discloses

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<sup>14</sup> Although Mr. Lanning did testify that modulating the short codes with data would render the system inoperable, his testimony, as the ALJ correctly found, related to a “hypothetical, undisclosed configuration in which “the base station can only detect unmodulated codes.” ID at 32 (addressing Resp. Br. at 296 and RX-3526C (Lanning) at Q71-95, 158-60); *see also* CX-1524C (Haas) (“The problem with Mr. Lanning’s analysis is that he is taking a design option, [and] applying it to only one side of the transmission[.]”). Mr. Lanning did not contest that such a modification would be considered a trivial design option to a person of ordinary skill in the art.

successively sending codes modulated by data because it “details a random access procedure for a CDMA system, wherein a mobile transmits access probes at increasing power levels to a base station until acknowledged” and the access probes “contain data that has been scrambled and spread before transmission.” Resp. Br. at 354; RX-3526C at Q225. Likewise, Dent is the work of industry player Ericsson on a random access procedure for CDMA. Resp. Br. at 344 (citing RX-3526C (Lanning) at Q405-06). Dent discloses the same conventional prior art approach of successively sending codes modulated with data. Dent “describes a CDMA cellular system where a mobile repeatedly transmits random access messages to a base station to gain access to the network.” Resp. Br. at 344 (citing RX-3526C (Lanning) at Q405-06). As with the access probes of IS-95, “the random access messages [of Dent] contain data that has been scrambled and spread before transmission.” *Id.* at 354 (citing RX-0248 (Dent 760) at 3:2-5, 3:24-27, 11:13-16). Thus, IS-95 and Dent confirm that a person of ordinary skill in the art considered successively sending codes modulated with data a straightforward and well-known technique.

In light of this record, the ALJ’s statement on page 93 of the ID does not establish that Respondents satisfied the heavy burden of establishing that the plain meaning of the term “transmissions” is unsupported by the written description to those of ordinary skill in the art.

**3. The WCDMA Accused Products Infringe the Asserted Claims of the ’830 Patent When the Asserted Claims Are Properly Construed**

The ALJ found that the WCDMA Accused Products meet every limitation in the ’830 patent asserted claims except “successively sends transmissions.” ID at 59-64. The ALJ further found that “the WCDMA Accused Products would satisfy the ‘successively sends transmission’ limitation if InterDigital’s proposed construction were adopted.” ID at 54. Because the Commission should adopt Complainants’ proposed construction, the WCDMA Accused Products infringe the ’830 asserted claims.

**D. The ALJ Erred in Construing the Claim Term “subsequent transmission” in the ’636 Patent to Require a “known code transmitted ... during power ramp-up”**

**1. Neither the Plain Meaning Nor the Intrinsic Evidence Justifies Construing the Claim Term “subsequent transmission” as “known code transmitted to the base station during power ramp-up”**

The ’636 patent asserted claims require sending a “subsequent transmission” after receiving the acknowledgment. JX-0007 (’636 Patent) at Claim 1. InterDigital proposed that “subsequent transmission” be given its plain meaning, *i.e.*, “transmission that is later in time.” The ALJ, however, construed the term to mean “known code transmitted to the base station during power ramp-up.” ID at 37. And for infringement, he imported the same “not modulated by data” restriction to the term “code” in his construction. ID at 58 (citing RX-3999C (Lanning) at Q377-78). This construction is erroneous. It is unsupported by the intrinsic evidence and rests on findings that are, later, expressly contradicted in the ID itself.

The plain language of the claims require that the “subsequent transmission” be sent after the acknowledgement or indication. It further requires using “a second length of the plurality of chips” to generate the “subsequent transmission.” The claims do not suggest that the “subsequent transmission” must be an unmodulated code, as required by the ALJ’s construction. They also say nothing about the transmission power level, or ramp-up of the transmission power level. The ALJ’s construction is untethered from the claim language.

Further, the ALJ’s constructions improperly give different meanings to the term “transmission” in different portions of the same claim. *NTP*, 418 F.3d at 1293; *Omega*, 334 F.3d at 1334. Specifically, the ALJ construed “transmission” in “subsequent transmission” to mean a “known code.” This is different from the construction of that term in the “successively sends transmissions” limitation, *i.e.*, “code that is shorter than a regular length code.” InterDigital’s plain meaning constructions give “transmission” a consistent meaning throughout the claims.

A construction that is “illogical and [does] not accord with the plain import of the claim language” is erroneous. *Interactive Gift Express, Inc. v. CompuServe Inc.*, 256 F.3d 1323, 1336 (Fed. Cir. 2001). That is the case here, as revealed by evaluating claim 10 of the ’636 patent. Specifically, claim 10 depends from claim 1, and requires that the “subsequent transmission is produced using an access code *and data* and uniquely identifies the subscriber unit to the base station.” JX-0007 (’636 Patent) at Claim 10. Under the ALJ’s claim construction, however, the “subsequent transmission” cannot include data (because he imported the “not modulated by data” restriction to the term “code”) and, consequently, claim 10 could never be satisfied. This logical impossibility demonstrates the ALJ’s error.

The ALJ’s error is further revealed by the fact that his construction excludes a preferred embodiment from the scope of the claims. Such a construction “is rarely, if ever, correct.” *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996). In particular, the specification discloses a preferred embodiment where the cellphone sends a message after receiving the indication. CX-3526C (Lanning) at Q56, 189; CX-1309C (Jackson) at Q525-58. The undisputed record establishes that this message includes a code modulated by data. ID at 94 (“[T]he evidence demonstrates that the ’830 and ’636 patents do in fact disclose using a portion of the access code to product [sic] the message ... Mr. Lanning testified that ... the access code is modulated by the data of the call setup message.”) (citing CX-1240C (Lanning 613 Dep.) at 204-206); CX-1309C (Jackson) at Q528). The undisputed record also establishes that this message is sent at a constant power level. CX-1309C (Jackson) at Q527-533; CX-1524C (Haas) at Q323-324, Q337-338. Thus, the ALJ’s construction – “known code [not modulated by data] transmitted to the base station during power ramp-up” – excludes this preferred embodiment.

The ALJ's construction rests on his incorrect finding that "the claimed invention relates to transmissions of codes ... during a power ramp-up sequence." ID at 37. But the ALJ later contradicted his "during a power ramp-up sequence" finding when he ruled that the subsequently transmitted message is within the scope of the invention, even though it is transmitted at a constant power level. ID at 93-94 (ruling that the message "is used during the establishment of a communication channel ... and is therefore *within the scope* of the invention"). *Id.* Thus, given that the message comprises a code modulated with data and is sent at a constant power level, it was error for the ALJ to construe the "subsequent transmission" as a "known code transmitted [unmodulated with data] during power ramp-up."

**2. The WCDMA Accused Products Infringe the Asserted Claims of the '636 Patent When the Asserted Claims Are Properly Construed**

The ALJ found that the WCDMA Accused Products meet every limitation in the '636 asserted claims except "successively sends transmissions" and "subsequent transmission." ID at 65-69. The ALJ further found that the WCDMA Accused Products would meet the "successively sends transmissions" and "subsequent transmission" limitation under InterDigital's construction of that term. ID at 54, 66. Because the Commission should adopt InterDigital's proposed construction, the WCDMA Accused Products infringe the '636 asserted claims.

**V. THE POWER CONTROL ('406 AND '332) PATENTS**

All asserted claims of the '406 and '332 patents include the term "power control bit." The correct construction of that term is "binary information relating to power control." This construction is consistent with the plain and ordinary meaning of the term and supported by the intrinsic and extrinsic evidence – including the testimony of both parties' experts. The ALJ correctly found that the WCDMA and CDMA2000 products would infringe the asserted claims of the '406 and '332 patents under this construction. *See* ID at 129-30.

In contravention of the plain meaning, the ALJ construed this straightforward term to mean “*single-bit power control information transmitted at an APC data rate equivalent to the APC update rate.*” ID at 100–03. Contrary to well-established precedent, that construction improperly imports two limitations from the patent specifications, with the result that it erroneously excludes preferred embodiments disclosed in the specifications. The ALJ’s claim construction, as well as his finding of non-infringement based on that erroneous claim construction, should therefore be reversed.

**A. Overview of the Power Control Patents**

The ’406 and ’332 patents relate to controlling transmission power levels in a CDMA system after a communications channel is established. In brief, once the power ramp-up strategy discussed in Part IV facilitates establishing a communications channel between a subscriber unit and a base station, the inventions claimed in the ’406 and ’332 patents control the transmission power level of both subscriber units and base stations during communication over the channel. Too little power prevents a telephone call from going through, whereas too much power creates interference. Interference is bad not only because it affects call quality, but also because it affects system capacity – *i.e.*, the number of simultaneous phone calls than can be placed by different users. Signals transmitted to (and from) each user cause interference for other users. Minimizing interference caused by users increases system capacity.

The inventions claimed in both the ’406 and ’332 patents enable subscriber units and base stations to inform each other about the need to increase or decrease transmission power using a mechanism called a power control bit. Under the ’406 patent, subscriber units *receive* one or more power control bits and, in response, adjust the transmission power levels of their traffic and control channels. Conversely, the ’332 patent relates to subscriber units *generating* –

rather than receiving – power control bits. The subscriber units include these power control bits on only one of two channels. Both channels are then input to a process called complex multiplication, or scrambling.

The '406 and '332 patents are asserted against two groups of products – those supporting the WCDMA standard and those supporting the CDMA2000 standard. *See* ID at 111-25. There is no dispute about how the accused products operate. The only dispute is whether that operation infringes the asserted claims. Claims 2-4, 7-11, 14, 22-24, and 27 of the '332 patent are asserted against the WCDMA and CDMA2000 products. With respect to the '406 patent, claims 13 and 26 are asserted against the WCDMA products, and claims 6, 20, and 29 are asserted against the CDMA2000 products. As discussed in detail below, both groups of products infringe.

**B. The Claim Term “Power Control Bit” Should Be Construed Consistent with its Plain and Ordinary Meaning as “Binary Information Relating to Power Control”**

The plain and ordinary meaning of “power control bit” is “binary information relating to power control.” CX-1310C (Prucnal) at ¶ 93. Testimony from both parties’ experts makes that clear. Respondents’ expert (Dr. Williams) stated that a bit “is simply a representation of a piece of information that has two states,” Tr. at 1204:22-25, which of course means information that is binary. And InterDigital’s expert (Dr. Prucnal) similarly explained that “bit” means “binary information.” The plain meaning of the full claim term therefore is “binary information relating to power control.” CX-1310C (Prucnal) at ¶ 93.

The surrounding claim language of both patents supports this interpretation. The '332 patent claims do not limit the type of binary information that makes up a power control bit. And the '406 patent claims require only that a power control bit has two states: “indicating either

an increase or decrease in transmission power level.” JX-0001 (’406 patent) at 15:32-34; *see also id.* at 16:38-40 (“each power control bit has a value indicating a command to either increase or decrease transmission power level”). These two states are binary information. *See* CX-1310C (Prucnal) at ¶ 93. To be sure, most independent claims of the ’406 patent recite receiving or recovering “a power control bit.” *See* JX-0001 (’406 patent) at claims 1, 15, 29, and 35. But the use of the article “a” before “power control bit” is not inconsistent with “binary information” even though binary information can come in the form of one or more individual bits, because when used in a patent the indefinite article “a” means “one or more.” *Baldwin Graphic Sys., Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1342-43 (Fed. Cir. 2008) (“That ‘a’ or ‘an’ can mean ‘one or more’ is best described as a rule, rather than merely a presumption or even a convention.”); *id.* (“The exceptions to this rule are extremely limited,” and “[t]he subsequent use of definite articles ‘the’ or ‘said’ in a claim refer back to the same claim term does not change the general plural rule, but simply reinvoles that non-singular meaning.”).

Dependent claims of the ’406 patent also support InterDigital’s position that the claimed “power control bit” is a broad term that is not, for example, limited to a 0 or 1. Six dependent claims require that “the power control bit has a value of +1 or -1.” *See, e.g.*, JX-0001 (’406 patent) at claim 4. “A person of ordinary skill would presume that a structure recited in a dependent claim will perform the function required of that structure in an independent claim.” *Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325, 1334 (Fed. Cir. 2010). Thus the independent claims – and consequently all asserted claims – of the ’406 patent 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.

As discussed in more detail below, moreover, the specifications' use of the term "bit" favors InterDigital's construction as well. Figure 4 of the '406 patent and Figure 27 of the '332 patent use the phrase "single APC bit." The '406 patent specification also refers to both "bit" and "one bit signals" or "a single bit." See JX-0001 ('406 patent) at 6:47. The use of those "single" and "one" modifiers throughout the specification "strongly implies" that the stand-alone and unmodified claim term "bit" is not limited to a single (or one) bit, but instead can encompass many bits as long as those bits ultimately represent only two binary states. See *Phillips*, 415 F.3d at 1314 (explaining that references to "steel baffles" "strongly imply that 'baffles' does not inherently mean objects made of steel"). The '332 patent also contemplates that multiple symbols (*e.g.*, multiple 1s and 0s) can represent a single "encoded bit." JX-0002 ('332 patent) at 45:48–50. This further suggests that each power control *bit* can be made up of multiple symbols – each symbol having a value of 0 or 1, for example.

Thus, the intrinsic and extrinsic evidence confirms that "power control bit" should be construed according to its plain meaning, as set forth in InterDigital's construction.

**C. The ALJ Erroneously Construed the Claim Term by Importing Limitations that the Specifications Do Not Require**

The ALJ deviated from the claim term's plain meaning by incorrectly importing the following two limitations from the specifications: (1) that each "power control bit" is transmitted at an APC data rate equivalent to the APC update rate; and (2) that each "power control bit" must be *single-bit* power control information. As discussed, under well-established and binding precedent, it is only appropriate to import limitations from the specification when the specification reveals a special definition, or clearly and unmistakably disavows a broader construction. *Phillips*, 415 F.3d at 1316 (*en banc*) (requiring that specification "reveal[s] a special definition" or "an intentional disclaimer, or disavowal, of claim scope."); *Linear Tech.*

566 F.3d at 1057-58 (requiring “clear and unmistakable” disavowal). Neither condition is satisfied for either of the extraneous limitations imported by the ALJ.

In departing from the claim term’s plain meaning, the ALJ cited the following five Passages from the specification:

- (1) “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.”
- (2) “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.”
- (3) “The APC bits are transmitted as one bit up or down signals on the APC channel.”
- (4) Figure 4 of the ’406 patent and corresponding description.
- (5) Figure 27 of the ’332 patent and corresponding description.

But none of these Passages individually or collectively justify the ALJ’s departure from the plain meaning. To begin with, the Passages do not use the term “power control bit,” let alone reveal a special definition or clearly and unmistakably disavow a broader construction of that term. They simply describe exemplary embodiments of one type of power control bit – an adaptive or automatic power control (“APC”)<sup>15</sup> bit – in the Description of the Preferred Embodiment of the ’406 and ’332 patents. Indeed, the final two, Figures 4 and 27, are explicitly labeled as “exemplary.” JX-0001 (’406 patent) at 3:27-28; JX-0002 (’332 patent) at 8:64-65. The limitations were improperly imported and the ALJ’s claim construction should be reversed.

**1. The Specifications Do Not Require Transmitting Power Control Bits at an APC Data Rate Equivalent to the APC Update Rate**

The ALJ erroneously imported a limitation that the “APC data rate” be “equivalent to the APC update rate.” *See* ID at 101-03. The phrase “APC data rate” refers to the

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<sup>15</sup> The patent specifications use the acronym APC to refer to both *adaptive* and *automatic* power control. *See* ID at 101 n.26; *see also* JX-0001 (’406 patent) at 4:32, 5:50.

speed at which APC data is transmitted between base stations and subscriber units, or otherwise carried on a communications channel. An exemplary data rate is 64 kb/s, which means 64,000 bits per second. The phrase “APC update rate” refers to the way in which transmission power is updated in response to received bits of APC data. For example, transmission power could be updated (or adjusted) once for each received APC bit, once for every two received APC bits, and so on. Although the denominators of the two measures are different (“per second” versus “per bit”), by treating the two as “equivalent,” the ALJ’s limitation requires there to be a 1:1 relationship between the number of times APC data is transmitted and the number of times transmission power is updated.

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. He appears to have reached that conclusion based on a preferred embodiment in the specifications that includes this limitation in near verbatim language. Specifically, Passage (2) provides that “APC information is always conveyed as a single bit of information, and *the APC Data Rate is equivalent to the APC Update Rate.*” JX-0001 (’406 patent) at 9:46-48; JX-0002 (’332 patent) at 67:43-45.<sup>16</sup>

There is no reason, however, to read Passage (2), which appears in the Description of the Preferred Embodiment sections of the specifications, as describing anything other than a feature of a particular preferred embodiment. This section of a patent is expressly understood to describe only preferred embodiments, not all embodiments. *See, e.g., Linear Tech.* 566 F.3d at 1058-59 (quoting *Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1301 (Fed. Cir. 2003)). The section containing Passage (2) explicitly confirms this point,

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<sup>16</sup> The other cited Passages do not even mention “APC update rates” or “APC data rates.”

specifically stating that different embodiments are contemplated and within the scope of the invention. *See* JX-0002 ('332 patent) 101:1-4; JX-0001 ('406 patent) at 14:51-55.

Nothing in the language of Passage (2) rebuts that understanding. As explained below with respect to the other imported limitation (“single” bit), the Passage’s use of the word “always” is not a clear and unmistakable indicator of an intent to limit the claim, as opposed to an intent to describe a mandatory feature of the described embodiment. *See infra* Part V.C.2. But in any event, the placement of the comma in the compound sentence before the coordinating conjunction ‘and’ signals that the “APC Data Rate is equivalent to the APC Update Rate” language is an independent clause that is not modified by the adverb “always.” And nothing else in that phrase could even arguably – much less clearly and unmistakably – be read as a disavowal or otherwise indicate that the inventors intended to apply the limitation beyond the specific embodiment to the invention as a whole. Construing specification language to limit a claim requires much more explicit language than that. *See, e.g., Verizon* 503 F.3d at 1308 (“present invention”); *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1343-44 (Fed. Cir. 2001) (“all embodiments”).

There are also many other reasons why construing this language from Passage (2) as a disavowal was clearly a mistake. First, Passage (2) never even uses the term “power control bit.” Second, unlike other descriptions in the specification, Passage (2) never states that it applies to “the present invention” or “all embodiments.”

Third, the specifications describe preferred embodiments in which the APC data rate is *not* equivalent to the APC update rate. Dr. Prucnal, whose testimony is credited throughout the ID, explained “that the integrator [543] in the circuit that’s shown in figure 5B [of the '406 patent], for example, would be an example of a case where the update rate of the power

control, which is coming out of the integrator, is at a lower rate than the input rate of the APC bits.” Tr. at 322:18-23; *see also* JX-0002 (’332 patent) at fig. 29B (integrator labeled 2943). This demonstrates that Passage (2) was *not* meant to apply to all embodiments. Claims are presumed to cover preferred embodiments, and a claim construction that excludes a preferred embodiment is “rarely, if ever, correct.” *InterDigital*, 690 F.3d at 1326 (quoting *Vitronics*, 90 F.3d at 1583). The ALJ’s construction that reads out the preferred embodiment where the APC update rate is not equivalent to the APC data rate violates this principle of claim construction.

Fourth, the only other references in the patents to equivalence in APC data and update rates are in Figure 4 of the ’406 patent and Figure 27 of the ’332 patent, both of which are expressly labeled *exemplary* implementations. This is perfectly consistent with the conclusion that the limitation was never intended to apply to *all* embodiments. *See* JX-0001 (’406 patent) at 3:27-28; JX-0002 (’332 patent) at 8:64-65.

It is also noteworthy that when this issue arose in related Investigation No. 337-TA-868, the OUII Staff disagreed with the ALJ’s position in this investigation. Specifically, like the ALJ here, a Respondent in that Investigation also tried to import a similar limitation into the construction of “power control bit” in the ’406 patent. The OUII Staff disagreed, proposing instead the following plain meaning construction: “a binary digit representing information relating to power control.” *See* Joint Proposed Claim Construction Chart at 6, ITC Inv. No. 337-TA-868 (Apr. 22, 2013). There is no reason to reach a different conclusion here.

The only other justification that the ALJ offered for importing this data rate limitation is the language of claim 1 and the following portion of claim 7 of the ’406 patent: “receiving by the subscriber unit a series of power control bits on a downlink channel, each power control bit indicating either an increase or decrease in transmission power level.” *See* ID

at 102 (quoting JX-0001 ('406 patent) at 15:31–34).<sup>17</sup> But that reasoning is directly refuted by other claim language. Specifically, the adjusting step of claim 7 expressly contemplates that an adjustment can be made in response to more than one bit. This adjusting step states “adjusting a transmission power level of both the traffic channel and the reverse control channel in response to the same bits in the received series of power control bits.” JX-0001 ('406 patent) at 15:38-40.

For all of these reasons, the ALJ erred by requiring that the claimed “power control bit” be transmitted at an APC data rate equivalent to the APC update rate. Doing so was a classic case of improperly importing limitations from a specification based on exemplary embodiments. And it is particularly inappropriate here because the construction excludes other preferred embodiments.

**2. The Specifications Do Not Require that Each Power Control Bit Is Single-Bit Power Control Information**

The ALJ also departed from the plain meaning of “power control bit” when he interpreted “bit” as “single-bit” – *i.e.*, when he concluded that the claims cover only power control information stored in a single digital bit. In the ALJ’s view, that limitation is justified because Passage (2) “disavows multi-bit power control commands.” *See* ID at 128 (relying only on Passage (2) for this purported disavowal). But Passage (2) does not clearly and unmistakably disavow “multi-bit power control commands” for all embodiments of the invention.

All Passage (2) says is that “**APC information** is always conveyed as a single bit of information.” Passage (2) does not use the term “power control bit,” nor does Passage (2) say that the “present invention” or “all embodiments” always use a single bit of information to convey APC information—the generally recognized terms sufficient for a disavowal under Federal Circuit precedent. *See, e.g., Verizon*, 503 F.3d at 1308 (“present invention”); *SciMed*,

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<sup>17</sup> The claims of the '332 patent say nothing about adjusting transmission power level, let alone in response to one or more power control bits.

242 F.3d at 1343–44 (“all embodiments”). The preferred embodiment section of the specification where Passage (2) is found does not purport to describe all embodiments. *See, e.g., Linear Tech*, 566 F.3d at 1058-59 (Fed. Cir. 2009) (quoting *Brookhill-Wilk*, 334 F.3d at 1301). Consequently, it is neither clear nor unmistakable that the claimed invention is limited to single bit power control information. *Id.* at 1057–58 (requiring “clear and unmistakable” disavowal).

Not only does Passage (2) fail to support the ALJ's construction, but it supports InterDigital's construction. This is so because Passage (2) demonstrates that when the inventors intended to limit themselves to a “single” bit, they purposely used the term "single." The inventors did not do so in the claims. Instead they used the stand-alone term “bit” without this qualification. This strongly suggests that the stand-alone term “bit” is not limited to one and only one bit. *See InterDigital*, 690 F.3d at 1325 n.1 (recognizing that “modifiers will not be added to broad terms standing alone”); *Phillips*, 415 F.3d at 1314 (explaining that the word “steel baffles” “strongly implies that the term ‘baffles’ does not inherently mean objects made of steel).

The ALJ therefore erred by confining the claimed “power control bit” based on a preferred embodiment that simply teaches others how to use a specific implementation of the invention in which “APC information” is conveyed as one piece of information that is binary – *i.e.*, has two states. Nothing else about the structure of the claims or specification lends support to that erroneous interpretation. Notably, the phrases “multi-bit power control commands” and “single-bit power control information” used by the ALJ do not appear anywhere in the patent specifications. Even Respondents' expert (Dr. Williams) agreed that “bit of information simply clarifies that a bit is a representation of a piece of information that has two states.” Tr. 1205:4-8. The Commission should therefore reject the ALJ's unsupported construction and instead adopt

the construction advanced by InterDigital and supported by the plain meaning of the claims: “binary information related to power controls.”

**D. Both WCDMA and CDMA2000 Products Infringe the Asserted Claims of the '406 and '332 Patents**

**1. The WCDMA and CDMA2000 Products Infringe All Asserted Claims of the '406 and '332 Patents, Properly Construed, and Respondents Are Liable for Indirect Infringement**

The ALJ found that the WCDMA and CDMA2000 products practice every limitation in the asserted claims of the '406 and '332 patents except the “power control bit” limitation(s), ID at 125-68, but also concluded that the products *would* practice this limitation under InterDigital’s proposed construction, *see id.* 129-30. Thus, if the Commission adopts InterDigital’s proposed construction of “power control bit,” the Commission can and should enter a finding that the WCDMA and CDMA2000 products directly infringe the asserted claims. Likewise, the ALJ found that if it “were determined that the accused WCDMA and CDMA2000 products directly infringe the '406 patent, then the record evidence shows that Respondents would be liable for induced [and contributory] infringement.” ID at 169 (induced), 171 (contributory). Accordingly, if the Commission adopts InterDigital’s proposed construction and concludes that the WCDMA and/or CDMA2000 products directly infringe the asserted claims of the '406 patent, the Commission can and should also enter a finding that Respondents are liable for induced and contributory infringement of those claims.<sup>18</sup>

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<sup>18</sup> The ID states that the Commission may still find that indirect infringement has not occurred with respect to Nokia’s Pureview 800 products and ZTE’s Warp products if those products are sold with WLAN disabled. *See* ID at 172 n.32-33. InterDigital and Respondents, however, never argued that WLAN functionality relates to the '406 or '332 patents, so this issue should not preclude a finding of indirect infringement.

**2. The WCDMA and CDMA2000 Products Directly Infringe the '406 and '332 Patents If the Commission Adopts the Single-Bit Portion of the ALJ's Construction But Rejects the Data Rate Portion**

The Commission – like the ALJ – is not required to adopt either party's proposed construction but instead has an independent obligation to determine the meaning of claims. It is therefore possible that the Commission may adopt a construction that includes some of the limitations found by the ALJ and reject others.

For the reasons explained in detail above, the part of the ALJ's construction requiring that the power control bit must be "transmitted at an APC data rate equivalent to the APC update rate" is plainly erroneous. If the Commission rejects that limitation but accepts the single-bit limitation, then the ALJ's extensive fact findings demonstrate that the WCDMA and CDMA2000 products directly infringe the asserted claims of the '406 and '332 patents.

**WCDMA:** The ALJ found that [REDACTED]

[REDACTED]

[REDACTED] ID at 115–16, 119 (citing CX-0232 (3GPP TS 25.211) at §§ 5.3.2, 5.2.1). TPC stands for "transmit power control," and each TPC Bit has a value of 0 or 1. *Id.* (citing CX-0232 (3GPP TS 25.211) at §§ 3.2, 5.3.2. The WCDMA products [REDACTED]

[REDACTED] *Id.* (citing CX-0234 (3GPP TS 25.214) at §§ 5.1.2.2.1–3, 5.1.2.5.1).

The ALJ found that the WCDMA products do not practice the "power control bit" limitation(s) because [REDACTED]

[REDACTED] *Id.* at 126-27. But if the Commission finds that there is no data-rate-equivalence limitation, it would not matter that the products [REDACTED]

[REDACTED] The WCDMA products infringe because [REDACTED]

[REDACTED]

[REDACTED] *See*  
Compl. Br. at 156-57 (citing testimony and other evidence); Compl. Reply Br. at 62-63. [REDACTED]

[REDACTED] *See,*  
*e.g.*, CX-1310C (Prucnal) at ¶¶ 145, 247. [REDACTED]

[REDACTED]

With that principle in mind, the WCDMA products infringe both the '406 and '332 patents. The asserted claims of the '406 patent require that the subscriber units *receive* “a series of power control bits.” The WCDMA products practice this limitation because [REDACTED] *See, e.g.*, ID at 115-16, 119. The asserted claims of the '332 patent require that the subscriber units *generate* “power control bits.” The WCDMA products practice this limitation because [REDACTED] *See, e.g., id.* at 115-16, 119. And the ALJ found that the remaining limitations in the asserted claims are met by the WCDMA products. *See id.* at 130-68. Thus, if the Commission agrees that the claimed power control bit does not need to be transmitted at an APC data rate equivalent to the APC update rate, then it should find that the WCDMA products infringe the asserted claims.

**CDMA2000**: The CDMA2000 products also infringe both the '406 and '332 patents even if “power control bit” means “single-bit power control information” because the ID itself demonstrates that the CDMA2000 products practice this limitation. Specifically, the ALJ found that [REDACTED] [REDACTED] ID at 129; *see also id.* at 120-21, 125. And he found further that [REDACTED] [REDACTED] *Id.* at 129-30 (citing testimony and other evidence); *see also id.* at 120, 125. These findings describe a power control bit that is single-bit power control information within the meaning of the construed

claim. The CDMA2000 products infringe the '406 patent because [REDACTED]

[REDACTED] The ALJ found that all other claim elements of both patents are satisfied. *See id.* at 130-68. Accordingly, the CDMA2000 products infringe the asserted claims of the '406 and '332 patents even if “power control bit” means “single-bit power control information.”

The ALJ nevertheless concluded that the CDMA2000 products do not use “single-bit power control information” and thus do not practice the claimed “power control bit” limitation(s) of the asserted claims, for two reasons. *See id.* at 127. Neither withstands scrutiny.

*First*, the ALJ stated that [REDACTED]

[REDACTED] *Id.* But that is not relevant to infringement. The '406 patent does not require that the subscriber units transmit any power control bits – that patent is about receiving power control bits. The '332 patent also does not require transmission of the “power control bits.” Rather, the relevant limitation of claim 1 of the '332 patent, for example, requires only a circuit to “generate power control bits which are included on only one of an in-phase (I) channel or quadrature (Q) channel.” The ID demonstrates that this limitation is satisfied because the ALJ concluded that [REDACTED]

[REDACTED] ID at 121; *see also id.* at 125, 129-30. And he also found that “[t]he CDMA2000 products also practice this limitation, inasmuch as [REDACTED]

[REDACTED] *Id.* at 139; *see also id.* at 140. Moreover, the ALJ concluded that [REDACTED]

[REDACTED] *Id.* at 121-22, 125. Accordingly, the ALJ’s first reason for finding the CDMA2000 products do not

infringe the asserted claims of the '406 and '332 patents is erroneous because the claims do not require transmission of the “power control bit.”

*Second*, the ALJ stated that the [REDACTED]

[REDACTED] *See* *id.* at 127 (citing Tr. (Prucnal) at 320; RX-3994C (Williams RWS) at Q24-25; CX-0017 (3GPP2 C.S0002) § 3.1.3.1.10). But that also is not relevant to the '332 patent because that statement relates only to power control information received by the CDMA2000 products, and no asserted claim of the '332 patent requires receiving a power control bit. This is also made plain by the ID itself, because the ALJ cited § 3.1.3.1.10 – a section describing the “Forward Power Control Subchannel.” CX-0017 (3GPP2 C.S0002) § 3.1.3.1.10. As the ALJ expressly found, a “Forward Power Control Subchannel” is a control channel received by subscriber units. ID at 119. In contrast to the '332 patent, the '406 patent does relate to power control information received by the CDMA2000 products. But the ALJ’s statement about symbols does not alter his conclusion that the CDMA2000 products receive a power control bit. *See* ID at 129 and 120-21, 125.

For these reasons, if the Commission concludes that “power control bit” means “single-bit power control information,” then the WCDMA and CDMA2000 products infringe the asserted claims of the '406 and '332 patents.

**3. The CDMA2000 Products Directly Infringe the '332 Patent Even If the Commission Fully Adopts the ALJ’s Construction**

Even if the Commission disagrees with InterDigital completely and fully adopts the ALJ’s construction that “power control bit” means (1) single-bit power control information (2) transmitted at an APC data rate equivalent to the APC update rate, the CDMA2000 products still infringe the asserted claims of the '332 patent. For the reasons discussed above (*see supra* Part V.D.2), the CDMA2000 products practice the “single-bit power control information” part of

this construction. The CDMA2000 products also practice the second part of this construction relating to APC update and data rates because it is undisputed that [REDACTED]

[REDACTED] See, e.g., CX-1310C (Prucnal) at ¶¶ 2134–2139; RX-3994C (Williams Rbt.) at ¶ 62 (arguing only that [REDACTED])

[REDACTED] The ALJ found that all other claim elements of both patents are satisfied. See ID at 130-68. Accordingly, the CDMA2000 products infringe the asserted claims of the '332 patent even if the Commission adopts the ALJ's construction.

## VI. THE DUAL-MODE SUBSCRIBER UNIT ('970) PATENT

The ALJ correctly interpreted the disputed term “a plurality of physical layer channels are available for assignment” to mean “two or more physical layer channels *allocable by the subscriber unit* for data communication.” ID at 303. This construction is compelled by the specification's explanation that a subscriber unit “of the present invention” performs “assignment or allocation of radio channels, as well as deallocation or release of those channels.” ID at 304. Where, as here, the specification describes “the present invention” – as opposed to a mere embodiment – that description limits the scope of the invention. *Verizon*, 503 F.3d at 1308 (citations omitted). The ALJ therefore correctly ruled that the assignment or allocation of channels “must . . . be performed by the subscriber unit, *not the base station*.” ID at 305.

The ALJ applied this correct construction when determining infringement. But when analyzing validity, the ALJ reinterpreted this construction to include assignment or allocation by the base station. This reinterpretation is error. Under the original construction, none of the prior art relied on by Respondents discloses this element. The ALJ's finding of invalidity, which rests on the incorrect reinterpretation of his construction, should be reversed.

**A. Overview of the Dual-mode Subscriber Unit Patent**

U.S. Patent No. 7,616,970 describes and claims a wireless, dual-mode subscriber unit. JX-0005 ('970 Patent) at Cover, Claims 1-18; CX-1306C (Stark) at ¶ 651. “Dual-mode” refers to the fact that the subscriber unit is capable of communicating data using short-range, high-speed networks, such as WLAN or WiFi, and long-range, lower speed wireless networks, typically cellular networks. CX-1306C (Stark) at ¶ 651; JX-0005 ('970 Patent) at 8:17-19.

The dual-mode subscriber unit provides access to one or more cellular physical layer channels, such as CDMA channels. JX-0005 ('970 Patent) at 5:29-34. The number of channels the subscriber unit uses to carry the data may vary depending on the desired data transfer rate. *Id.* at 7:8-13. A feature described as the “bandwidth management function” within the subscriber unit is responsible for controlling physical layer channel assignment or allocation (as well as release or deallocation). *Id.* at 7:11-13, 7:23-25, 9:64-10:3, 10:33-42. The subscriber unit assigns or allocates cellular bandwidth only when there is actual data present for transmission. *Id.* at 10:33-35. As a result, physical layer channels need not be allocated during the entire existence of a communication session. *Id.* at 10:35-37. When wireless channel utilization is low, *e.g.*, when there is no data to transmit, the subscriber unit may release the physical layer channels. *Id.* at 4:14-18. The release of unused physical layer channels makes their bandwidth available for other users. *Id.* at 10:37-42. As a result, very high speed connections are available at critical times. *Id.* at 4:19-26.

In addition to cellular operation, the subscriber unit of the '970 patent also supports WLAN communication. When a WLAN is detected, the subscriber unit can communicate via the WLAN. *Id.* at 2:50-54, 2:63-65, 10:51-54. If no WLAN is detected, data

communications can be conducted over the cellular network. *Id.* at 10:46-50. The subscriber unit may switch between the cellular and WLAN networks. *Id.* at 10:60-64.

**B. The ALJ Correctly Construed The Term “A Plurality of Physical Layer Channels Are Available For Assignment”**

Claim Term/Phrase	ALJ’s Correct Construction	ALJ’s Reinterpretation of Construction for Invalidity
a plurality of physical layer channels are available for assignment for communication	two or more physical layer channels <b>allocable by the subscriber unit</b> for data communication	two or more physical layer channels <b>used by the subscriber unit</b> for data communication

For purposes of infringement, the ALJ correctly construed the disputed term “a plurality of physical layer channels are available for assignment” to mean “two or more physical layer channels allocable by the subscriber unit for data communication.”<sup>19</sup> ID at 303. Under this construction, “any allocation of channels must therefore be performed by the subscriber unit, not the base station.” *Id.* at 305. This construction is compelled by the specification’s description of “the present invention” as a subscriber unit that assigns channels for data transmission.

As the ALJ observed, Figure 6 “shows a terminal 615 which includes a subscriber unit 101 incorporating the features of *the present invention*.” ID at 304 (quoting JX-0005 (’970 Patent) at 9:27-28); *see also* JX-0005 (’970 patent) at 4:59-60 (describing Figure 6 as a block diagram of “a subscriber unit of the present invention”). The specification goes on to explain that the subscriber unit of the present invention, shown in Figure 6, contains a “bandwidth management function 134.” JX-0005 (’970 Patent) at 9:36-38 (describing the “subscriber unit 101” of Fig. 6). As the ALJ correctly concluded, the specification thereby teaches that “[t]he

<sup>19</sup> The ALJ correctly found that in the context of the claim, “assignment” and “allocation” are synonyms. ID at 305. The ALJ relied on both InterDigital expert Dr. Stark’s explanation that the specification uses these terms interchangeably, and on Respondents’ expert Dr. Bims’ admissions that these terms are synonyms, and testimony where he used the terms interchangeably. ID at 305; CX-1526C (Stark); at ¶¶ 300-302; RX-3998C (Bims) at ¶ 60; Tr. (Bims) at 1290-1292. The ALJ thus rejected Respondents’ argument that InterDigital’s construction was incorrect because assignment and allocation have very different meanings. ID at 305.

bandwidth management function is responsible for allocating and deallocating CDMA radio channels 160 as required,” but that “wireless bandwidth is allocated only when there is actual data present from the terminal equipment to the CDMA transceiver.” ID at 304 (quoting JX-0005 ('970 Patent) at 9:64-65, 10:33-35).

The specification’s characterization of a subscriber unit of “the present invention” as assigning the physical layer channels “is strong evidence that the claims should not be read to encompass the opposite” – i.e., that the base station, rather than the subscriber unit, assigns the physical layer channels. *SciMed*, 242 F.3d at 1343. When a patent “describes the features of ‘the present invention’ as a whole, this description *limits the scope of the invention.*” *Verizon*, 503 F.3d at 1308. Indeed, Respondents acknowledged that principle in their post-hearing reply brief. Resp. Reply Br. at 12 (quoting *Verizon* for the same proposition). As the ALJ correctly found, “[t]he specification therefore demonstrates that the assignment or allocation of radio channels, as well as deallocation or release of those channels, is performed by the subscriber unit, and that the assignment occurs when the subscriber unit has data to transmit.” ID at 304.

The ALJ’s conclusion – that this description of “the present invention,” wherein only the subscriber unit has a role allocating channels, was intended to define the scope of the claim (and not merely to discuss one optional embodiment) – is bolstered by the absence of any description in the specification of a subscriber unit that is assigned physical layer channels by a base station. CX-1526C (Stark Rbt.) at ¶ 295. Respondents pointed to one sentence in the specification, at 3:42-44, that describes “centrally allocated” channels, but that sentence does not mention either subscriber units or physical layer channels. ID at 305. Unsurprisingly, the ALJ did not find Respondents’ argument persuasive. *Id.* As Dr. Stark explained, that sentence explains that “the network may allocate bandwidth that subscriber units are permitted to use to

send data.” CX-1526C (Stark Rbt.) at ¶¶ 296-298. Each subscriber unit is then responsible for allocating a sub-portion of that bandwidth, i.e., a channel, when it has data to transmit. *Id.*

In sum, in a subscriber unit of “*the present invention*,” assignment or allocation of radio channels, as well as deallocation or release of those channels, is always performed by the subscriber unit. The subscriber unit’s bandwidth management function assigns or allocates physical layer channels only when actual data is present. CX-1306C (Stark) at ¶ 693; JX-0005 (’970 Patent) at 10:33-35. In other words, physical layer channels are assigned *by the subscriber unit* when they are going to be used to *transmit data*, and released when they are no longer in use, making their bandwidth available to other users. CX-1526C (Stark Rbt.) at ¶ 285; JX-0005 (’970 Patent) at 10:33-42. Therefore, the ALJ correctly found that assignment or allocation of channels “must . . . be performed by the subscriber unit, *not the base station*.” ID at 305.

**C. The ALJ Erred When, in Analyzing Validity, He Incorrectly Reinterpreted His Construction to Include Assignment by the Base Station**

The requirement that the claimed subscriber unit, not the base station, assigns the physical layer channels is a key distinction over the prior art. None of the prior art on which Respondents rely discloses assignment of physical layer channels by the subscriber unit. To the contrary, Respondents admit that “in the prevailing cellular systems at the time of the ’970 Patent’s claimed invention, it was the base station or network, not the subscriber unit, that assigned physical layer channels.” Resp. Br. at 380-81. And Respondents’ expert, Dr. Bims, agreed with InterDigital’s expert, Dr. Stark, that in the prior art standards, GPRS and IS-95, “the base station, not the subscriber unit, allocated physical layer channels for use in transmitting data from the subscriber unit.” Resp. Br. at 380-81; RX-3519C (Bims) at ¶¶ 56-57; RDX-0009; *see also* RX-3519C (Bims) at ¶ 623. As the ALJ noted, a similar prior art standard, the Draft UMTS, “is a follow-on to GPRS.” ID at 354. As InterDigital’s expert, Dr. Stark, explained, the

subscriber unit (called “user equipment” or “UE”) in UMTS uses the channels “that it has been assigned by the base station.” CX-1526C (Stark Rbt.) at ¶ 381. In short, in the prior art standards (UMTS, GPRS, and IS-95), allocation of the physical layer channels is performed by the base station, not the subscriber unit. *See, e.g.*, CX-1526C (Stark Rbt.) at ¶¶ 380, 506, and 694. Indeed, in his discussion on validity, the ALJ specifically relied on Dr. Stark’s conclusion that “in IS-95 and GPRS, the base station assigns the physical layer channels.” ID at 358.

The fact that the prior art only discloses assignment of channels by the base station should have compelled the ALJ to reject Respondents’ invalidity defenses because as construed by the ALJ, the claims required assignment by the subscriber unit. But when considering validity, the ALJ ignored his own construction that the assignment must be performed by the subscriber unit. Instead, the ALJ (at Respondents’ behest) reinterpreted his construction. Under his reinterpretation, the ALJ concluded that the prior-art cellular standards, such as GPRS, which Respondents admit only disclose base station assignment of channels, nevertheless disclose assignment of channels by the subscriber unit. And the ALJ relied *solely* on these prior art references as disclosing this assignment element. ID at 357-58 (relying on GPRS, Draft UMTS or IS-95/657 as disclosing this element for combination with Jawanda), 369 (relying on the mention of GPRS or IS-95/657 as disclosing this element in Jawanda), 375-76 (relying on GPRS as disclosing this element for combination with Lemailanen), 378-79 (discussing combinations with Draft UMTS, but not mentioning this element).<sup>20</sup>

In reinterpreting his claim construction, the ALJ relied upon testimony in which he believed Dr. Stark had stated broadly that “allocation” means the same thing as “use.” ID at

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<sup>20</sup> The ALJ also identified one combination, Jawanda with Lemailanen, which he said rendered the ’970 patent obvious, without relying on GPRS or other prior art cellular standards. However, the ALJ failed to identify *any* disclosure of this element in his discussion of that combination, which was less than a page long. *Id.* at 370-71. This cursory analysis, which fails to even mention this critical claim requirement, cannot support a finding of invalidity.

357. From this premise, the ALJ reasoned that, if a prior art subscriber unit merely “uses” a channel, it has allocated or assigned the channel. *Id.* The ALJ erred. Use and allocation are entirely separate. Indeed, both experts agreed that, in the prior art systems, such as GPRS, after the base station assigns the physical layer channels, the subscriber unit then *uses* the assigned channels solely for “transmitting data.” RX-3519C (Bims) at ¶¶ 56-57 (quoting InterDigital expert Dr. Stark). Nonetheless, because the ALJ believed that allocation is the same thing as use, he agreed with Respondents that these prior art systems disclose the allocation or assignment element, despite the fact that in the prior art, the physical layer channels are first assigned by the base station. Stated another way, what the ALJ did, in effect, when analyzing validity, was reinterpret his construction so that “two or more physical layer channels allocable by the subscriber unit for data communication” now meant “two or more physical layer channels used by the subscriber unit for data communication.” ID at 306, 357. The ALJ erred in departing from his original construction, which is correct for the reasons discussed above.

Respondents may argue that the ALJ did not reinterpret anything, but rather merely applied his original construction with the understanding – based on InterDigital expert Dr. Stark’s testimony – that “allocate” means the same thing as “use.” ID at 357. However, that cannot be correct because this supposed “application” of the construction *vitiates* the requirement of the original construction that the allocation of channels must be “performed by the subscriber unit, *not* the base station.” ID at 305. Under the ALJ’s logic, the physical layer channels are always assigned by the subscriber unit. This is because assigned physical layer channels are always used by the subscriber unit to transmit data, regardless of whether the base station or the subscriber unit assigns those channels to the subscriber unit. For example, both experts agree that in the prior art systems, after the base station assigns the physical layer channels, the

subscriber unit then uses the assigned channels for “transmitting data.” RX-3519C (Bims) at ¶¶ 56-57 (quoting InterDigital expert Dr. Stark). However, this mere use is not assignment by the subscriber unit. In these prior art systems, the channels have already been assigned by the base station. Thus, the ALJ’s reinterpretation of the claims as covering mere “use” of physical layer channels is a new claim construction – not simply an application of the original construction. *See, e.g., Vita-Mix Corp. v. Basic Holding, Inc.*, 581 F.3d 1317, 1324 (Fed. Cir. 2009) (changing the meaning of a claim construction when analyzing infringement is a new construction); *In re Katz*, 639 F.3d at 1325-26 (finding court’s interpretation of its own claim construction in infringement analysis is an “issue of claim construction”).

Moreover, this new claim construction is wrong. It is based on a misinterpretation of InterDigital expert Dr. Stark’s testimony about the meaning of “assign” and “allocate.” As Dr. Stark explained, the subscriber unit described and claimed in the ’970 patent decides when it will transmit data over which channels, rather than having that decision made (as in the prior art) by the base station. CX-1526C (Stark Rbt.) at ¶¶ 280, 283, 284, 293, and 295. Specifically, the subscriber unit of the ’970 Patent allocates the channels to itself – *i.e.*, by deciding to use those channels – when it has data to transmit. *Id.* at ¶ 284 (“[T]he specification [of the ’970 Patent] makes it clear that the subscriber unit allocates bandwidth when it has data to transmit.”). In other words, in the context of the ’970 patent, “use” by the subscriber unit ***includes*** the assignment or allocation. For this reason, as Dr. Stark testified, “in the context of the ’970 patent” and specifically InterDigital’s construction, “allocate” or “assign” means the same thing as “use.” Tr. (Stark) 498:4-24. The subscriber unit cannot use the channels without allocating or assigning them to itself.

That context is very different from the context of the prior art. As the ALJ found, “in the prevailing cellular systems at the time of the ’970 Patent’s claimed invention, it was the base station or network, not the subscriber unit, that assigned physical layer channels.” ID at 303 (quoting Resp. Br. at 380-81). Of course, after the base station or network assigned those physical layer channels to the subscriber unit, the subscriber unit would then use them to transmit data. But that mere use was not assignment. Assignment had already taken place. Thus, “use” in the context of the prior art is not the same as the “use” described by Dr. Stark in the context of the ’970 patent, which requires allocation of the physical layer channels by the subscriber unit.

In short, the ALJ’s original construction, requiring that physical layer channels be assigned by the subscriber unit, and not by the base station, is correct. His reinterpretation of that construction – broadened to cover assignment by the base station, and applied only in his validity analysis – is incorrect. Because this new construction was the sole basis for the ALJ’s finding that the prior art disclosed “a plurality of physical layer channels are available for assignment,” the ALJ’s finding of invalidity should also be reversed.

## **VII. CONCLUSION**

For the foregoing reasons, InterDigital respectfully requests that the Commission review the ID, correct the ALJ’s errors of law as discussed above, find that accused devices infringe each of the asserted claims of the power ramp up, power control, and dual-mode subscriber unit patents, determine that each respondent has violated Section 337, and issue appropriate exclusion and cease and desist orders.

Respectfully submitted,

Dated: July 15, 2013

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**CERTIFICATE OF SERVICE**

It is hereby certified that copies of **COMPLAINANT INTERDIGITAL'S PUBLIC VERSION OF PETITION FOR REVIEW OF THE FINAL INITIAL DETERMINATION** were served on July 25, 2013 as follows:

<p>Lisa R. Barton Acting Secretary to the Commission U.S. International Trade Commission 500 E Street, S.W., Room 112A Washington, DC 20436</p>	<p>By EDIS</p>
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