United States Court of Appeals for the Federal Circuit

INTERDIGITAL COMMUNICATIONS, LLC, AND INTERDIGITAL TECHNOLOGY CORPORATION,
Appellants,

v.

INTERNATIONAL TRADE COMMISSION,
Appellee,

and

NOKIA INC. AND NOKIA CORPORATION,
Intervenors.

2010-1093

Appeal from the United States International Trade Commission in Investigation No. 337-TA-613.

Decided: August 1, 2012

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Before NEWMAN, MAYER, and BRYSON, *Circuit Judges*.

Opinion for the court filed by *Circuit Judge* BRYSON.
Dissenting opinion filed by *Circuit Judge* NEWMAN.

BRYSON, *Circuit Judge*.

InterDigital Communications, LLC, and InterDigital Technology Corporation (collectively, "InterDigital") appeal from an order of the International Trade Commission finding that InterDigital's patents, U.S. Patent Nos. 7,190,966 ("the '966 patent") and 7,286,847 ("the '847 patent"), were not infringed by Nokia Inc. and Nokia Corporation (collectively, "Nokia"). We hold that the Commission erred in construing certain critical claim terms in both patents. We therefore reverse the Commission's order finding no infringement and remand this case to the Commission for further proceedings.

I

The patents in suit, which are directed to wireless cellular telephone technology, are both entitled "Method and Apparatus for Performing an Access Procedure." They share a common specification. The patents focus on apparatus and methods for controlling transmission power during the "handshake" portion of a wireless cellular communication, which is the portion of the communication in which a cellphone establishes contact with a cellular base station in order to initiate a cellphone call. The claimed invention operates 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 transmits the telephonic 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.

The CDMA system is able to use a single portion of the frequency spectrum for multiple simultaneous communications by employing a process known as "spreading." As described in the common specification, 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." '966 patent, col. 2, ll. 3-5. 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," *id.*, col. 2, ll. 7-9, 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 system is that signals within the same geographical area can interfere with one another, causing data loss. To combat that problem and to reduce unnecessary power consumption, the '966 and '847 patents use a "power ramp-up" strategy, which limits the power level of initiation messages sent during the handshake period. The power ramp-up begins when the subscriber unit transmits a unique code signal at a power level known to be below the power level needed for detection by the base station. The subscriber unit then transmits the code signal at successively higher power levels; once the power level reaches the point at which the base station is able to detect the signal, the base station sends an acknowledgement signal to the subscriber unit. When the subscriber unit receives the acknowledgment signal, it fixes the current power level as the designated power level for future communications. The connection is then completed, the subscriber unit and the base station are synchronized, and the data constituting the telephonic message is ready to be transmitted.

The '847 patent is a continuation of the '966 patent. Claim 1 of the '966 patent, which is representative in

pertinent part of all the claims asserted in this action, recites:

> 1. A wireless code division multiple access (CDMA) subscriber unit comprising:
>
> a transmitter configured such that, when the subscriber unit is first accessing a CDMA network and wants to establish communications with a base station associated with the network over a communication channel to be indicated by the base station, the transmitter successively transmits signals until the subscriber unit receives from the base station an indication that a transmitted one of the signals has been detected by the base station, wherein each transmission of one of the signals by the transmitter is at an increased power level with respect to a prior transmission of one of the signals;
>
> the transmitter further configured such that the transmitter transmits to the base station a message indicating to the base station that the subscriber unit wants to establish the communications with the base station over the communication channel to be indicated by the base station, the message being transmitted only subsequent to the subscriber unit receiving the indication,
>
> wherein each of the successively transmitted signals and the message are generated using a same code; and
>
> wherein each of the successively transmitted signals is shorter than the message.

The common specification describes an embodiment of the invention in which the base station transmits a "pilot code" to all of the subscriber units within the transmitting range of the base station. The "pilot code" is described as a "spreading code which carries no data bits." '966 patent, col. 5, line 10. The subscriber unit then synchronizes its "transmit spreading code" to the base station pilot code. *Id.*, col. 5, ll. 22-32. Once the subscriber unit and the base station are synchronized, the subscriber unit can initiate a communication by transmitting an "access code," which is "a known spreading code transmitted from a subscriber unit . . . to the base station . . . during initiation of communications and power ramp-up." *Id.*, col. 6, ll. 21-23. Upon receipt of the access code, the base station searches through the possible phases of the access code in order to acquire the correct phase so as to enable the initiation of data communication. *Id.*, col. 6, ll. 23-38.

When initiating a communication in that embodiment, the subscriber unit "continuously increases the transmission power while retransmitting the access code . . . until it receives an acknowledgement from the base station." '966 patent, col. 6, ll. 57-62. After the minimum power for reception is reached and the base station acquires the access code, the base station transmits an access code detection acknowledgment signal to the subscriber unit. Upon receipt of that signal, the subscriber unit stops the power increase, and two-way communication is established. *Id.*, col. 6, line 62 to col. 7, line 5.

Because the access code is long and the base station must acquire the correct phase of the access code before it can proceed with the initiation process, the specification explains that the previously described embodiment can lead to "power overshoot," i.e., usage of a power level that

is substantially higher than that needed for reliable communication. Power overshoot can result in interference with the communications from other subscriber units in the same geographical area. '966 patent, col. 7, ll. 11-34. To address that problem, the specification describes a preferred embodiment of the invention that uses "short codes" and a "two-stage communication link establishment procedure to achieve fast power ramp-up without large power overshoots." *Id.*, col. 7, ll. 41-44.

In that embodiment, when the subscriber seeks to establish a communication link, the subscriber unit starts transmitting a short code at a power level known to be below the power level required for detection by the base station. The subscriber unit then "continuously increases the transmission power level while retransmitting the short code" until it receives an acknowledgement from the base station that the short code has been detected. '966 patent, col. 7, line 65, to col. 8, line 4. Because the short code can be transmitted much more frequently during a particular period of time, the short code is quickly detected and the transmission power overshoot is minimized. *Id.*, col. 8, ll. 5-14.

When the base station detects the short code from the subscriber unit, it transmits a short-code-detection-indication signal to the subscriber unit, at which point the subscriber unit stops transmitting the short code and starts transmitting a periodic access code. The starting point of the short code is synchronized with the starting point of the access code, so that acquiring the short code facilitates the base station's task of acquiring the proper phase of the access code. The subscriber unit continues to increase the transmission power while transmitting the access code, but at a reduced rate. When the base station detects the correct phase of the access code, it sends an

acknowledgement to the subscriber unit, whereupon the ramp-up process is concluded and the subscriber unit proceeds to send call-setup messages to the base station. '966 patent, col. 8, line 32, to col. 9, line 13; col. 10, ll. 23-53. The specification explains that the "short codes" in that embodiment "are generated from a regular length spreading code." *Id.*, col. 9, ll. 20-21.

II

InterDigital filed a complaint with the Commission in 2007 asserting that Nokia had violated section 337 of the Tariff Act of 1930, 19 U.S.C. § 1337, by importing Wide-band CDMA handsets that infringed the '966 and '847 patents. The case was assigned to an administrative law judge who conducted an evidentiary hearing and ultimately ruled in Nokia's favor, finding that InterDigital had failed to prove infringement.

The administrative law judge began by construing the disputed claim terms. He first defined the term "code" to mean "a sequence of chips," i.e., a sequence of transmitted digital bits. He then ruled that the term "code" as used in the patents in suit is limited to "a spreading code or a portion of a spreading code." In the claim construction portion of his order, the administrative law judge construed the term "spreading code" to mean "a sequence of chips." In the infringement portion of his order, however, the administrative law judge elaborated on that definition. In discussing Nokia's wireless communication initiation system, the administrative law judge found that the codes used in that system are not spreading codes because they are not "used or intended to be used to increase the bandwidth of another signal" and because those codes do not spread data or perform channelization and are not generated from a spreading code. Instead,

the administrative law judge found that Nokia's products transmit signals from the subscriber units using a "scrambling code," which is not used or intended to be used to increase the bandwidth of another signal and thus does not satisfy the administrative law judge's definition of "spreading code." The administrative law judge also found that Nokia's preamble signatures are not transmitted in the form of spreading codes, because they do not spread data nor do they perform any other form of channelization, i.e., they do not divide the transmission medium for allocation to multiple parties. For that reason, and because the claim term "code" in all the asserted claims was interpreted to be restricted to spreading codes, the administrative law judge found that Nokia's system did not infringe the asserted claims.

The administrative law judge construed the term "increased power level" to mean that "the power level of a transmission is higher than that of a previous transmission." In light of the purpose of the invention, he added the requirement that "the power level of a code signal increases during transmission." By that construction, the administrative law judge interpreted the claims to require that the power level of the signal be increased continuously throughout the ramp-up period in which transmissions are being sent from the subscriber unit, both during the intervals between transmissions and during the course of the individual transmissions themselves. The administrative law judge found that Nokia's products do not continuously increase the power level of the code signal during the ramp-up process. In Nokia's products, the power increases are intermittent, and the power is not increased during the transmission of each individual signal. For that reason as well, the administrative law judge found that Nokia's products did not infringe InterDigital's patents. Based on those findings, the adminis-

trative law judge entered a final initial determination finding no violation of section 337.

On petitions for review, the Commission took no position with respect to the administrative law judge's determinations of patent validity and his resolution of certain claim construction issues unrelated to this appeal. It affirmed the administrative law judge's determination of no violation of section 337, however. InterDigital then appealed to this court.

III

A

Claim terms are generally given their ordinary meaning as understood by persons skilled in the art in question at the time of the invention. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (en banc). The plain meaning of claim language ordinarily controls unless the patentee acts as his own lexicographer and provides a special definition for a particular claim term or the patentee disavows the ordinary scope of a claim term either in the specification or during prosecution. *Id.* at 1316.

Neither of those exceptions applies in this case. 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. Nor is there any other persuasive justification for construing the claim term "code" to include only a spreading code. The normal rule giving claim terms their ordinary meaning therefore governs here. The record reflects that the plain meaning of "code" to one of skill in the cellphone communications art is a sequence of bits (if the

ones and zeros are transmitted at the "data rate") or chips (if the ones and zeros are transmitted at the faster "chip rate"). Thus, by its plain language the term "code" is broad enough to cover both a spreading code and a non-spreading code.

Besides the nonrestrictive nature of the ordinary meaning of the claim term "code," the doctrine of claim differentiation provides a powerful argument against construing the term "code" restrictively, to mean "spreading code." Independent claim 1 of the '966 patent uses the term "code," and dependent claim 5 recites, in full, "The subscriber unit of claim 1 wherein the same code is a spreading code." The clear implication of narrowing the term "code" in dependent claim 5 by limiting the claim scope to cases in which the claimed code "is a spreading code" is that the term "code" in the independent claim is *not* limited to a spreading code.

The doctrine of claim differentiation is at its strongest in this type of case, "where the limitation that is sought to be 'read into' an independent claim already appears in a dependent claim." *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004); *see Wenger Mfg., Inc. v. Coating Mach. Sys., Inc.*, 239 F.3d 1225, 1233 (Fed. Cir. 2001) ("Claim differentiation . . . is clearly applicable when there is a dispute over whether a limitation found in a dependent claim should be read into an independent claim, and that limitation is the only meaningful difference between the two claims."). Although the doctrine of claim differentiation creates only a presumption, which can be overcome by strong contrary evidence such as definitional language in the patent or a clear disavowal of claim scope, neither type of contrary evidence is present here. To the contrary, the presumption is "especially strong" in this case, because "the limitation in dispute is

the only meaningful difference between an independent and dependent claim, and one party is urging that the limitation in the dependent claim should be read into the independent claim." *Sunrace Roots Enter. Co. v. SRAM Corp.*, 336 F.3d 1298, 1303 (Fed. Cir. 2003). The administrative law judge's construction of the term "code" in claim 1 as meaning "spreading code" renders claim 5 superfluous, a result that counsels strongly against that construction. *See Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998).

The logic of the situation is as powerful as it is simple: if the term "code" means "spreading code," then claim 1 recites a device in which the signals are "generated using a same [spreading] code," and claim 5 covers exactly the same subject matter. If the claim drafter had intended to limit claim 1 to spreading codes, as the administrative judge concluded, it would have been much simpler for the drafter to explicitly recite the "spreading code" limitation in claim 1 and omit dependent claim 5 altogether.[1]

Nokia (but not the Commission) argues that claim differentiation has no application in this case because the reference to "code" in claim 1 of the '966 patent includes not only spreading codes but also portions of a spreading code, while the reference to "spreading code" in claim 5 of the '966 patent requires the code to be a complete spread-

[1] A related point is that the term "code" is a general term that is used with several different modifiers in the patents ("pilot code," "access code," and "spreading code"). Such general descriptive terms are ordinarily given their full meaning; "modifiers will not be added to broad terms standing alone." *Johnson Worldwide Assocs., Inc. v. Zebco Corp.*, 175 F.3d 985, 989 (Fed. Cir. 1999); *see Phillips*, 415 F.3d at 1314 (reference in claim to steel baffles "strongly implies that the term 'baffles' does not inherently mean objects made of steel").

ing code. Thus, Nokia contends, the two claims cover different subject matter even if the term "code" is construed to mean "spreading code." That argument fails because the specification treats a segment of a spreading code as a spreading code regardless of its length. For example, although the specification describes the short codes as being "generated from a regular length spreading code," '966 patent, col. 9, ll. 20-21, it describes the short codes as themselves being spreading codes, *id.*, col. 7, ll. 44-46 ("The spreading code transmitted by the subscriber unit . . . is much shorter than the rest of the spreading codes (hence the term short code) . . . ."). Thus, claim 5 does not exclude non-spreading codes and short segments of spreading codes; it excludes all non-spreading codes, and in so doing, indicates that the term "code" in claim 1 of the '966 patent includes non-spreading codes.

The administrative law judge (like the Commission in its brief) recognized that the presumption created by the doctrine of claim differentiation applies in this case. Nonetheless, he concluded that the presumption was overcome because "the asserted claims each relate to a CDMA system, and . . . the specification discloses that CDMA systems use spreading codes." In addition, the administrative law judge relied on the fact that the common specification did not identify any codes that "are not spreading codes or portions of spreading codes."

Neither of those reasons overcomes the strong presumption created by claim differentiation in this case. The fact that spreading codes are used in CDMA systems does not mean that every code used in a CDMA system must be a spreading code. That is particularly true of the initiation codes, which the specification makes clear are not used to spread data signals. Indeed, Nokia's system is a CDMA system that the administrative law judge found

does not rely exclusively on spreading codes in the initiation process, so there is no inherent feature of CDMA systems that requires that all codes used in such a system must be spreading codes.

The administrative law judge relied heavily on the fact that the preferred embodiments described in the common specification refer to the access code and short code as spreading codes or as being generated from spreading codes and that the common specification does not identify any non-spreading codes that are used in embodiments of InterDigital's patents. Moreover, the administrative law judge noted that InterDigital's expert witness characterized the short code as a type of "spreading code." Based in part on that testimony, the administrative law judge concluded that the common specification of the patents in suit contains no reference to any code that is not a "spreading code" and that the term "code" in the claims should therefore be interpreted to mean "spreading code."

The problem with that analysis is that the specification and the expert witnesses did not use the same definition of "spreading code" as the administrative law judge. Although the administrative law judge defined a "spreading code" as a code that is "used or intended to be used to increase the bandwidth of another signal," the common specification indicates that the patentees did not adopt such a construction of the term. As noted, the specification describes various codes, such as pilot codes and short codes, as "spreading codes" even though they carry no data and are not intended to do so. *See* '966 patent, col. 5, ll. 9-10; col. 7, ll. 44-49. If a code carries no data, i.e., if it is not modulated with a data signal, there is no signal whose bandwidth is increased or is intended to be increased. Experts for both InterDigital and Nokia con-

firmed that some of the codes described in the specification, such as the short codes and the access codes, are examples of spreading codes even though they do not spread, or modulate, data. As one of the inventors explained, he regarded all of the codes used in broadband CDMA systems as spreading codes even though some of them are "reference codes" that "do not spread anything." Thus, contrary to the definition of spreading codes adopted by the administrative law judge, the patents (and the expert witnesses) used the term "spreading code" to mean a code that is transmitted at the chip rate (the faster rate at which encoded telephonic communication data bits are transmitted as a sequence of chips) rather than at the data rate (the slower rate at which telephonic communication data bits are transmitted), regardless of whether the code is used or intended to be used to spread data.

The administrative law judge's construction of the term "spreading code" as applying only to a code that is used or intended to be used to increase the bandwidth of another signal creates a problem with the patents in suit. Because the short codes and access codes described in the common specification do not spread data, adoption of the administrative law judge's definition of spreading codes, together with his construction of the term "code" as limited to spreading codes, would mean that neither of the preferred embodiments described in the common specification would fall within the scope of the claims. As this court has frequently observed, that is a result that "is rarely, if ever, correct." *Pfizer, Inc. v. Teva Pharm., USA, Inc.*, 429 F.3d 1364, 1374 (Fed. Cir. 2005); *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996).

The disconnect between the specification and the administrative law judge's definition of spreading codes led

the administrative law judge to conclude both (1) that the patents were limited to spreading codes, based on the repeated references to spreading codes in the specification, and (2) that Nokia's system did not use spreading codes, based on the fact that Nokia's preamble codes do not spread data and are not generated from a spreading code. Thus, it appears that the administrative law judge was in effect using different definitions of the term "spreading code" for purposes of claim construction and infringement. In order for the question of infringement to be appropriately determined, it is critical that the terms "code" and "spreading code" are assigned the same meaning both in the patents and in the analysis of the accused system. Because that was not done in this case, that issue will need to be revisited on remand.

To be sure, the patents contain no express definition of "spreading code," and it appears from the evidence before the administrative judge that the term "spreading code" is used somewhat loosely by those working in the field of cellular communications. For example, although scrambling codes of the sort used in Nokia's accused devices do not spread data, the evidence showed that such codes, which are transmitted at the chip rate, are frequently referred to as spreading codes. It may well be that it was because of the lack of a precise definition for the term "spreading code" among those working in the field that the patentees consistently chose to use the term "code," rather than "spreading code" in the claims (except for dependent claim 5 of the '966 patent). That consideration adds further force to InterDigital's argument that the claim term "code" should have been given its ordinary meaning and that the asserted claims should not have been limited to devices that use "spreading codes," particularly if that term is defined restrictively to apply to

codes that are used or intended to be used to increase the bandwidth of another signal.

Moreover, contrary to Nokia's suggestion, there is no sharp distinction between a spreading code, as that term is used in the patents, and a scrambling code. In fact, Nokia's scrambling code operates in a manner that is substantially similar to a spreading code. The administrative law judge found that spreading codes are intended to spread data because they have a higher chip rate than the data signals they modulate. As shown in Nokia's technical specifications, Nokia's scrambling code operates at the faster chip rate and would create a rate differential if it were applied to the original, pre-spread data signal. The only reason that rate differential is not seen in Nokia's system is because the scrambling code is applied to a signal that has already been modulated to the chip rate via a spreading code.

B

The second claim construction issue raised by InterDigital has to do with the claim limitation that requires that "each transmission of one of the signals by the transmitter is at any increased power level with respect to a prior transmission of one of the signals." '966 patent, claim 1. The administrative law judge construed the term "increased power level" to require that the power level used to transmit the ramp-up signals be increased continuously, including during individual signal transmissions, rather than solely during the interim periods between individual transmissions. By construing the term in that manner, the administrative law judge limited the patents to embodiments featuring continuous increases in power throughout the ramp-up period. Doing so had the effect of excluding systems, such as Nokia's

system, that employ discrete power increases during the ramp-up process, in which the power is increased between transmissions but not during the course of each transmission.

Claim 1 of the '966 patent recites that "each transmission of one of the signals by the transmitter is at an increased power level with respect to a prior transmission of one of the signals." Claim 5 of the '847 patent contains similar language. The administrative law judge initially noted that the plain language of that claim is broad enough to cover both continuous and discrete increases in signal power levels. In his ultimate claim construction ruling, however, the administrative law judge limited the phrase "increased power level with respect to a prior transmission of one of the signals" to continuous increases in power because he regarded that feature as "an integral part of the invention." The administrative law judge based that conclusion on language in the specification referring to "continuously increasing the transmit power level while retransmitting the short code," '966 patent, col. 7, line 66, to col. 8, line 1, and on the purpose of the invention to reduce power overshoot.

Those factors are not sufficient to overcome the plain language of the claims, which clearly covers both continuous and stepped power increases. First, the reference to "continuously increasing the transmit power level while retransmitting the short code" occurs in the context of a preferred embodiment and does not purport to describe the limits of the invention as a whole. In addition, the use of the term "continuously" does not mandate the interpretation that the power increases must continue even during transmissions; the patents also use the term "continually" to describe the increases in the power level, '966 patent, col. 7, ll. 16-18, and that term refers to events

that recur intermittently, rather than events that occur without interruption. The specification therefore does not clearly restrict the scope of the invention to a system in which the power increases continue in the course of each transmission.

Second, while reducing power overshoot is an important objective of the patents in suit, the invention achieves that objective principally through the use of short codes, which decrease the amount of time required to transmit each signal, thus reducing the potential for power overshoot. The common specification discloses embodiments in which power increases occur during signal transmission, but there is nothing in the specification indicating that the patentee intended to limit the claimed invention to embodiments in which the power increase occurs during the course of individual signal transmissions.

Finally, Nokia and the Commission point to the inventors' "conception documents" showing sketches of a "stair-step" system of transmission. They argue that those sketches show that "the inventors were clearly aware of both the continuous power level increase disclosed in the . . . patents and the step-wise power level increase that the claims allegedly cover." By choosing not to disclose the latter method in the patents, they argue, InterDigital must be deemed to have excluded stepped power increases from the scope of its invention. That argument, however, depends on the conclusion that the claims do not, by their plain language, include both intermittent and continuous increases in power. Because we conclude that the claim language is broad enough to include both embodiments, the inventors' failure to include a reference to the alternative embodiment in the specification does not justify excluding that embodiment

from the coverage of the claims. Consequently, we hold that the administrative law judge should have construed "increased power level" to include both intermittent and continuous increases in power.

IV

Nokia proposes two alternative grounds to support the Commission's decision. First, Nokia argues that that there can be no infringement in this case because the scrambling codes in the Nokia system are not transmitted. Neither the administrative law judge nor the Commission addressed that argument. The agency's decision was not predicated on that rationale, and under well-settled principles of administrative law, we are not free to accept Nokia's invitation to uphold the agency's decision on a ground not ruled on by the agency. *See SEC v. Chenery Corp.*, 318 U.S. 80, 87 (1943); *Vizio, Inc. v. Int'l Trade Comm'n*, 605 F.3d 1330, 1343 n.11 (Fed. Cir. 2010); *Mittal Steel Point Lisas Ltd. v. United States*, 542 F.3d 867, 878 n.1 (Fed. Cir. 2008). That issue, if Nokia wishes to raise it again before the Commission, may be raised on remand.

The second ground on which Nokia seeks affirmance is one that was addressed by the administrative law judge but not reviewed by the Commission. Nokia argued to the administrative law judge, and argues to us, that InterDigital's patent licensing activities did not satisfy the "domestic industry" requirement of section 337, 19 U.S.C. § 1337(a)(2) and (3). The administrative law judge held that InterDigital's activities satisfied the domestic industry requirement, and we agree.

Paragraph (2) of subsection (a) of section 337 provides that the portion of paragraph (1) of that subsection that

bars the importation of articles that infringe a U.S. patent or are made by a process covered by the claims of a U.S. patent applies "only if an industry in the United States, relating to the articles protected by the patent . . . exists or is in the process of being established." 19 U.S.C. § 1337(a)(2). Paragraph (3) of subsection (a) provides that for purposes of paragraph (2),

> an industry in the United States shall be considered to exist if there is in the United States, with respect to the articles protected by the patent . . . concerned—
>
> (A) significant investment in plant or equipment;
>
> (B) significant employment of labor or capital; or
>
> (C) substantial investment in its exploitation, including engineering, research and development, or licensing.

Id. § 1337(a)(3).

Nokia argues that in order to satisfy section 337(a)(2), InterDigital had to establish that there is a United States industry "relating to the articles protected by the patent," and that proof of licensing activities alone is not sufficient to satisfy that requirement. The problem with that argument, as the administrative law judge noted, is that section 337(a)(3) makes clear that the required United States industry can be based on patent licensing alone; it does not require that the articles that are the objects of the licensing activities (i.e., the "articles protected by the patent") be made in this country. That is, the domestic industry requirement is satisfied if there is a domestic industry based on "substantial investment in [the pat-

ent's] exploitation" where the exploitation is achieved by various means, including "licensing."

That interpretation of the statute is strongly supported by the legislative history that gave rise to the "licensing" language in section 337(a)(3). Congress added subparagraph (C) to section 337(a)(3) in 1988 to overrule earlier Commission decisions that had found that licensing alone did not constitute a domestic industry. Omnibus Trade and Competitiveness Act of 1988, Pub. L. No. 100-418, § 1342(a), 102 Stat. 1212-13. The Senate report on the bill that amended section 337 specifically recognized that the "third factor," i.e., subparagraph (C), "does not require actual production of the article in the United States if it can be demonstrated that substantial investment and activities of the type enumerated are taking place in the United States." S. Rep. No. 100-71, at 129 (1987); *see* H.R. Rep. No. 100–40, at 157 (1987); *see also John Mezzalingua Assocs., Inc. v. Int'l Trade Comm'n*, 660 F.3d 1322, 1327-28 (Fed. Cir. 2011).

In the years since the enactment of that amendment, the Commission has consistently ruled that a domestic industry can be found based on licensing activities alone. *See, e.g.*, *Certain Integrated Circuits, Chipsets, and Products Containing Same Including Televisions, Media Players, and Cameras*, Inv. No. 337-TA-709, Order No. 33 (Jan. 5, 2011); *Certain Semiconductor Chips with Minimized Chip Package Size and Products Containing Same*, Inv. No. 337-TA-605, Order, at 118 (Dec. 1, 2008); *Certain Semiconductor Chips with Minimized Chip Package Size and Products Containing Same (III)*, Inv. No. 337-TA-630, Order No. 31 (Sept. 16, 2008); *Certain 3G Wideband Code Division Multiple Access (WDCMA) Handsets and Components Thereof*, Inv. No. 337-TA-601, Order No. 20 (June 24, 2008); *Certain Digital Processors and Digital Process-*

ing Systems, Components Thereof, and Products Containing Same, Inv. No. 337-TA-559, Order No. 24, at 84 (June 21, 2007). In those cases, the Commission has held that subparagraph (C) requires a showing of substantial licensing activities related to the asserted patent in order to support a finding as to the existence of a domestic industry based on licensing; it has not, however, required that the licensed product be manufactured in this country. If there were any ambiguity as to whether the statute could be applied to a domestic industry consisting purely of licensing activities, the Commission's consistent interpretation of the statute to reach such an industry would be entitled to deference under the principles of *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837 (1984); *see Nucor Corp. v. United States*, 414 F.3d 1331, 1336 (Fed. Cir. 2005); *Cathedral Candle Co. v. U.S. Int'l Trade Comm'n*, 400 F.3d 1352, 1361-62 (Fed. Cir. 2005).

Nokia has not challenged the administrative law judge's findings as to that nexus. Nor has Nokia questioned whether the scope of InterDigital's licensing activities was sufficient to constitute a domestic licensing industry, a point on which the administrative judge made extensive affirmative findings. Accordingly, we reject Nokia's "domestic industry" argument.

V

Because the Commission erred in construing the claim terms "code" and "increased power level" and in finding, based on those claim constructions, that Nokia's products do not infringe InterDigital's patents, we reverse the administrative law judge's determination of non-infringement and remand for further proceedings.

REVERSED AND REMANDED

United States Court of Appeals for the Federal Circuit

INTERDIGITAL COMMUNICATIONS, LLC AND INTERDIGITAL TECHNOLOGY CORPORATION,
Appellants,

v.

INTERNATIONAL TRADE COMMISSION,
Appellee,

and

NOKIA INC. AND NOKIA CORPORATION,
Intervenors.

2010-1093

Appeal from the United States International Trade Commission in Investigation No. 337-TA-613.

NEWMAN, *Circuit Judge*, dissenting.

The dispositive issue is the scope of the term "code" as used in claim 1; that is, does "code" include a scrambling code, or is it limited to the definition and usage of "code" in the specification. The meaning created for "code" by the panel majority is unsupported by and outside of the specification, where the majority's definition is neither described nor enabled. It is different from the meaning and usage that

a person experienced in the field of the invention would understand on reading the specification.

Technical terms in patents have the meaning that the patentee gave them. The Commission correctly construed "code" as a spreading code, for that is how the patentee described it. The patent states that the code is a spreading code, and that a spreading code generator is used to produce the code. No other form of code, although well known in this art, is mentioned or suggested for use in the ramp-up that is the subject of the patented invention. Nonetheless the panel majority holds that "code" in claim 1 includes a scrambling code, and on this ground reverses the Commission's ruling of non-infringement.

The Commission, in construing "code" as a spreading code, observed that a scrambling code is nowhere mentioned in the specification, although the scrambling code was well known in this field of technology. The panel majority invokes the "doctrine of claim differentiation," and holds that since "code" is specified as a "spreading" code in claim 5, then it necessarily includes all other codes in claim 1. However, the doctrine of claim differentiation does not permit enlarging a claim term beyond its presentation in the specification. A technical term in a patent claim is construed in accordance with its description and enablement in the patent; it cannot be construed more broadly in a claim, than its description in the specification.

The spreading code is the only code that is described for ramp-up. Omitting the qualifier "spreading" from claim 1 does not enlarge the description and enablement of the patented invention. From this erroneous claim construction, and the ensuing reversal of the Commission's finding of non-infringement, I respectfully dissent.

DISCUSSION

The Commission held that the ramp-up "code" is a spreading code, because it is described as a spreading code, produced by a spreading code generator, and no other form of code is suggested. The patent specification explicitly and insistently repeats that a spreading code is used for the short code ramp-up. Nokia points to the technological differences between the codes, in that its scrambling code does not change the frequency curve, as does a spreading code. Nokia explains that:

> Spreading is the means by which multiple users can use the same frequency band at the same time. Scrambling does not enable multiple users to share a frequency; its purpose is to provide separation for signals that might otherwise look the same. Spreading applies chips to data at a rate differential. Scrambling, in contrast, applies a code at the same rate as the information being scrambled.

Nokia Br. 54. Instead, the panel majority reconstructs and redefines "code" in a manner that distorts the term from its presentation in the InterDigital patents. The majority adopts the language used by the Commission, as urged by InterDigital, defining "code" as "a sequence of chips that is transmitted," but gives no weight at all to the Commission findings that:

> All of the codes recited in the common specification are described as being generated from a spreading code generator. Although these codes may not be used to spread data during the claimed access procedure, they are still the types of codes that are intended to spread data because they have a higher chip rate than a data signal.

Comm. Br. 37. No error has been assigned to these findings, although only spreading codes are supported by the specification. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (en banc) (the claim's meaning is determined by the specification). In the specification only a "spreading code" is described for use in the CDMA system of this invention:

> In a CDMA system, the same portion of the frequency spectrum is used for communication by all subscriber units. Each subscriber unit's baseband data signal is multiplied by a code sequence, called the **"spreading code,"** which has a much higher rate than the data. The ratio of the **spreading code** rate to the data symbol rate is called the **"spreading factor"** or the "processing gain." This coding results in a much wider transmission spectrum than the spectrum of the baseband data signal, hence the technique is called **"spread spectrum."** Subscriber units and their communications can be discriminated by assigning a unique **spreading code** to each communication link which is called a CDMA channel.

'966 Patent col.2 ll.1-12 (all boldface added). The patents state in the Summary of the Invention that "The short code is a sequence for detection by the base station which has a much shorter period than a conventional **spreading code**." *Id.* col.3 ll.23-25. The patents state that "[t]he pilot code 40 is a **spreading code** which carries no data bits." *Id.* col.5 ll.9-10. The patents state, describing Figure 10:

> The transmitter section 74 comprises a **spreading code** generator 86 which generates and outputs **spreading codes** to a data transmitter 88 and a short code and access code transmitter 90. The

> short code and access code transmitter 90 transmits these codes at different stages of the power ramp-up procedure as hereinbefore described.

Id. c̲ol.10 ll.10-15. The patents stress that the short codes and access codes are produced by a **spreading code** generator, *Id.* col.6 ll.53-54.

The '847 Patent states that the "regular length **spreading code**" is used to spread the "subscriber unit's baseband data signal." '847 Patent col.2 II.1-10. The InterDigital patents describe use of the transmitted **spreading code**, or a **short spreading code** form, until the proper power level is reached and the data are transmitted; *id.*, col.8 l.15 – col.9 l.6, and then are used to increase the bandwidth of the data signal after the power ramp-up process is complete.

In addition, InterDigital's expert Mr. Vojcic, Nokia's expert Mr. Lanning, and inventor Dr. Fatih Ozluturk, all testified that the short codes described in the '966 and '845 specifications are spreading codes. Dr. Ozluturk also stated that "some of these codes, such as the short codes and the access code that I mentioned previously, are the examples of codes that do not spread anything. And they are there for timing reference and as indicators." Testimony of Dr. Ozluturk, Trial Tr. 126:16-127:25, May 26, 2009.

InterDigital's expert, Dr. Vojcic, also acknowledged that the spreading codes do not necessarily spread bandwidth:

> Q. Yes. Dr. Vojcic, you indicated spreading codes do not necessarily increase the bandwidth of an information signal.
>
> Are there codes in the '004 patent which are spreading codes but do not increase the bandwidth of information signals?

> A. Yes, there are. Like pilot code, short code, and access code.

Trial Tr. 383:19-384:4, May 26, 2009. Dr. Vojcic further testified:

> Q. Now, you would agree with me that in the context of the '004 patent, a short code is just part of a spreading code?
>
> A. Yes, I do agree with that.

Trial Tr. 609:4-7, May 26, 2009. Inventor Dr. Ozluturk testified similarly:

> Q. You have introduced this term short code in your description of the solution to the interference problem for the access procedure technology. What is a short code in that context?
>
> A. Well, in this context, the short code is a spreading code, just like all the other codes we use in broadband CDMA. As a spreading code, it is a sequence of chips, chip values.

Trial Tr. 126:16-23, May 26, 2009.

No witness, no expert, no inventor, testified that the code described for ramp-up in the InterDigital patents as a scrambling code. The ALJ reviewed the evidence, and in light of InterDigital's argument that the PRACH scrambling code is a spreading code, including the "UMTS; Spreading and modulation (FDD) (3GPP TS 25.213 version 5.6.0 Release 5)," which describes spreading as follows:

> Spreading is applied to the physical channels. It consists of two operations. The first is the channeli-

> zation operation, which transforms every data symbol into a number of chips, thus increasing the bandwidth of the signal. The number of chips per data symbol is called the Spreading Factor (SF). The second operation is the scrambling operation, where a scrambling code is applied to the spread signal.

The Commission observed that this document refers to a channelization code as a "spreading code," while a scrambling code is referred to as a separate code. *In the Matter of Certain 3G Mobile Handsets and Components Thereof*, 2010 ITC LEXIS 666 at *134 (ITC October 14, 2009) ("Final Determination"). The Commission also mentioned InterDigital's admission that the PRACH preamble is not used or intended for use to increase the bandwidth of another signal, and is not the type of code that is a spreading code. *Id.* at *148.

The panel majority, ignoring these findings, simply finds "that the term "spreading code" is used somewhat loosely by those working in the field of cellular communications." Maj. Op. 16. Such loose usage is not apparent in the record. The record shows that the witnesses knew what they were saying, in this high-stakes litigation, and that the inventors knew what they wrote in their patents. The rules of claim construction do not permit unsupported departure from the technical terms used by the inventors in describing their invention. There was no evidence at all that "spreading code" is understood by persons in the field as "scrambling code." The record shows that persons in the field of this invention fully understood the meaning of these common terms, and did not use them "loosely." The court's theory that there is "no sharp distinction" between a spreading code and a scrambling code does not convert the technologically distinct scrambling code into a spreading code, or

redefine "spreading" to include "scrambling," contrary to the well-understood meaning of those terms.

"The ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." *Phillips*, 415 F.3d at 1313. InterDigital's patents consistently describe this code for this use as a "spreading code." *See* '966 Patent col.5 ll.9-10 ("The pilot code 40 is a **spreading code** which carries no data bits."); *id.*, col.6 ll.20-23 ("The access code 42 is a known **spreading code** transmitted from a subscriber unit 16 to the base station 14 during initiation of communications and power ramp-up.").

The Commission held that, "the asserted claims each relate to a CDMA system, [and] the specification discloses that CDMA systems use spreading codes." *Final Determination* at *69. The Commission placed dispositive weight on this emphasis in the InterDigital patents on the use of spreading codes in the ramp-up. The Commission found, and it is not disputed, that the Nokia scrambling code does not provide a data rate differential or increase in bandwidth. The Commission found that the PRACH preambles of the NOKIA handsets are not spreading codes or generated from spreading codes, that they do not perform channelization, and cannot be used to increase bandwidth. *Id.* at *88-89. These findings are supported by more than substantial evidence.

The Commission did not err in determining that the InterDigital claims do not include Nokia's scrambling code, whether or not a scrambling code signal can increase the signal bandwidth. The InterDigital patents describe only spreading codes, and do not suggest any alternative to the short spreading code in the ramp-up phase. The panel majority's reliance on the "doctrine of claim differentiation"

is misplaced, for this "doctrine" can not enlarge the meaning of claim terms beyond their presentation and support in the patent document. As stated in *Tandon Corporation v. International Trade Commission*, 831 F.2d 1017, 1024 (Fed. Cir. 1987), "Whether or not claims differ from each other, one can not interpret a claim to be broader than what is contained in the specification and claims as filed." *See also*, *e.g.*, *Retractable Techs., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1305 (Fed. Cir. 2011) (finding claim differentiation to be rebutted where "the specifications do not disclose a body that consists of multiple pieces or indicate that the body is anything other than a one-piece body"); *quoting Seachange Int'l, Inc. v. C-COR, Inc.*, 413 F.3d 1361, 1369 (Fed. Cir. 2005); *Toro Co. v. White Consol. Indus., Inc.*, 199 F.3d 1295, 1302 (Fed. Cir. 1999) (the doctrine of claim differentiation does not serve to broaden claims beyond their meaning in light of the specification"); *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1480 (Fed. Cir. 1998) ("the doctrine of claim differentiation cannot broaden claims beyond their correct scope, determined in light of the specification and the prosecution history and any relevant extrinsic evidence"); *O.I. Corp. v. Tekmar Co.*, 115 F.3d 1576, 1582 (Fed. Cir. 1997) ("Although the doctrine of claim differentiation may at times be controlling, construction of claims is not based solely upon the language of other claims; the doctrine cannot alter a definition that is otherwise clear from the claim language, description, and prosecution history.").

Only spreading codes and short spreading codes are shown in the InterDigital patents. The common specification defines a "spreading code" as a code having "a much higher rate than the [subscriber unit's baseband] data" and which spreads data at a specific symbol rate called the "spreading factor" or "processing gain." '966 Patent, col.2 ll.3-7. The patents describe the drawings accordingly, as

showing that "the transmit spreading code generator 64 outputs a spreading code to the data transmitter 66 and the pilot code transmitter," *id.*, col.9 ll.50-53; and that "[t]he transmitter section 74 comprises a spreading code generator 86 which generates and outputs spreading codes to a data transmitter 88 and a short code and access code transmitter 90." *Id.*, col.10 ll.10-13. Each of the codes identified in the common specification exhibits a higher data rate than the subscriber unit's baseband data, has a specific "spreading factor" or "processing gain," and is generated by a spreading code generator. This description supports the Commission's construction of "code" as a spreading code that initiates contact during the power ramp-up phase, and then spreads to transmit data after contact has been achieved. There is no support whatsoever, anywhere in the patents, for the panel majority's construction of "code" as including a scrambling code for these purposes.

The limitation in all the claims that a "same code" is used for ramp-up and for the message conforms to the Commission's construction that the ramp-up code is limited to its description in the specification as a spreading code for use in the CDMA system that is the basis of the InterDigital patents. The Commission correctly found that "the presumption created by claim differentiation is rebutted," Final Determination at *69, and correctly ruled that the codes referenced in the specification and the claims are all spreading codes. *Id.*

The panel majority's enlargement beyond the invention described in the patents, in disregard of the protocols of claim construction, simply adds uncertainty to the patent grant. *See Phillips*, 415 F.3d at 1315 ("the words of the claims must be based on the description" in the specification). In today's technology-based commerce, rational economics requires that the patent provide a reliable basis

for investment. The patentee is in control of the specification that describes the invention. The panel majority's theory that "the inventors' failure to include a reference to the alternative embodiment in the specification does not justify excluding that embodiment from the coverage of the claims," Maj. Op. at 19-20, is a departure from routine rules of the meaning of legal documents, and in negation of the notice purpose of the patent claim. From this unsound approach to claim construction, and its incorrect conclusion on the facts of this case, I respectfully dissent.