

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LENOVO HOLDING COMPANY, INC., LENOVO
(UNITED STATES) INC., and MOTOROLA MOBILITY LLC,
Petitioner,

v.

INTERDIGITAL TECHNOLOGY CORPORATION,
Patent Owner.

IPR2020-01505
Patent 8,797,873 B2

Before JUSTIN T. ARBES, CHRISTOPHER L. OGDEN, and
JOHN R. KENNY, *Administrative Patent Judges*.

KENNY, *Administrative Patent Judge*.

DECISION
Final Written Decision
Determining No Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

Lenovo Holding Company, Inc., Lenovo (United States) Inc., and Motorola Mobility LLC (“Petitioner”) filed a Petition to institute an *inter partes* review (“IPR”) of claims 1–10 (the “challenged claims”) of U.S. Patent No. 8,797,873 B2 (Ex. 1001, the “’873 patent,” “challenged patent”) pursuant to 35 U.S.C. § 311 *et seq.* Paper 1 (“Pet.”). InterDigital Technology Corporation (“Patent Owner”) filed a Preliminary Response. Paper 7 (“Prelim. Resp.”).

On April 15, 2021, we instituted an *inter partes* review of all challenged claims. Paper 11 (“Institution Decision” or “Inst. Dec.”). Patent Owner filed a Patent Owner Response (Paper 16, “PO Resp.”). Petitioner filed a Reply (Paper 19, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 20, “PO Sur-reply”). A transcript of an oral hearing held on January 25, 2022 (Paper 30, “Tr.”) has been entered into the record.

We have jurisdiction under 35 U.S.C. § 6. For the reasons discussed below, we determine that Petitioner has not shown, by a preponderance of the evidence, that claims 1–10 are unpatentable.

A. Related Matters

The parties identify the following related district court litigation: *InterDigital Technology Corp. v. Lenovo Holding Co.*, Case No. 1-19-cv-01590 (D. Del.) (“Related Litigation”). Pet. 3; Paper 5, 2.

Patent Owner identifies IPR2020-01236, IPR2020-01237, IPR2020-01413, IPR2020-01481, IPR2020-01494, IPR2020-01514, and IPR2020-01515 as all challenging patents asserted in the related district court litigation. Paper 5, 2–3.

B. Challenged Patent

The '873 patent relates to “a method and apparatus for preventing transmission blocking in an HSUPA [high speed uplink packet access] wireless communication system.” Ex. 1001, 1:18–22.

Figure 1 of the '873 patent is shown below:

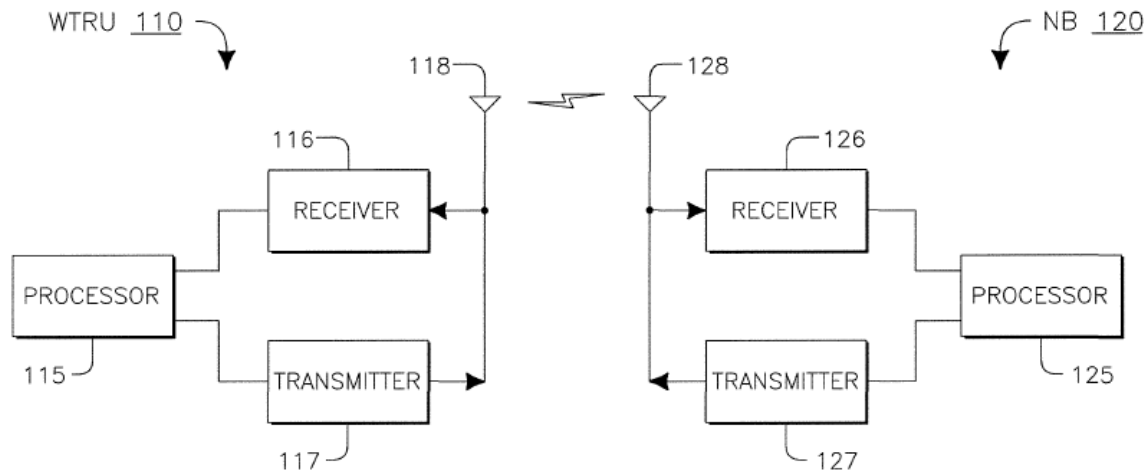


FIG.1

Figure 1 above is a functional block diagram of a WTRU (wireless transmit/receive unit) 110 and NB (Node-B) 120. Ex. 1001, 3:44–45. In the '873 patent, the term “WTRU” encompasses “user equipment (UE), a mobile station, a fixed or mobile subscriber unit, a pager, a cellular telephone, a personal digital assistant (PDA), a computer, or any other type of user device capable of operating in a wireless environment.” *Id.* at 3:34–39. Further, in the '873 patent, the term “base station” encompasses a Node-B. *Id.* at 3:39–41. “WTRU 110 is in communication with the NB 120 and both are configured to perform a method for preventing transmission blocking in an HSUPA wireless communication system.” *Id.* at 3:46–49.

Figure 2 of the '873 patent is shown below:

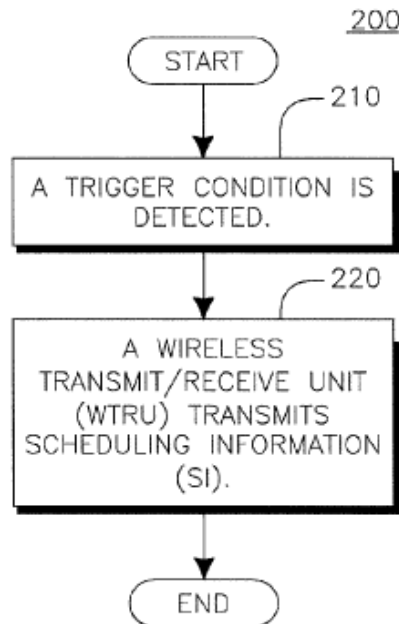


FIG. 2

Figure 2 above “is a flow diagram of a method for preventing transmission blocking in an HSUPA wireless communication system.” Ex. 1001, 3:19–21. The '873 patent discloses that, in step 210 of this flow diagram, “a trigger condition for transmitting an SI [scheduling information] is detected.” *Id.* at 4:8–9. The '873 patent provides the following example of a trigger condition: “the transmission of the SI alone may occur when the transmission of any, or in a specifically defined, MAC-d [medium access control-d] flow is stopped because the current non-zero grant is smaller than the minimum required to transmit the next MAC SDU [service data unit], or RLC [radio link control] PDU [protocol data unit] of the particular MAC-d flow.” *Id.* at 4:9–14. The '873 patent further describes that “[t]he trigger condition, in this case, may occur when it is not possible to transmit a single PDU of a given MAC-d flow.” *Id.* at 4:14–16.

C. Challenged Claims

Petitioner challenges claims 1–10. Pet. 1. Claims 1 and 6 are independent. Ex. 1001, 7:36–8:37. Claim 1 reads:

1. A method performed by a Third Generation Partnership Project (3GPP) wireless transmit/receive unit (WTRU), the method comprising:

triggering transmission of scheduling information (SI), from the WTRU to a Node-B, in response to the WTRU having a non-zero grant smaller than needed preventing the WTRU from sending a medium access control protocol data unit (PDU) of any of a plurality of scheduled medium access control-d (MAC-d) flows.

Id. at 7:36–8:6. Claim 6 reads:

6. A Third Generation Partnership Project (3GPP) wireless transmit/receive unit (WTRU) comprising:

circuitry configured to trigger transmission of scheduling information (SI), from the WTRU to a Node-B, in response to the WTRU having a non-zero grant smaller than needed preventing the WTRU of transmission of a medium access control protocol data unit (PDU) of any of a plurality of scheduled medium access control-d (MAC-d) flows.

Id. at 8:17–26.

D. Asserted Challenges to Patentability and Prior Art

Petitioner challenges claims 1–10 based on the grounds in the table below:

Ground	Claims Challenged	35 U.S.C. §	References
1	1, 5, 6, and 10	102	Zhang ¹
2	1, 5, 6, and 10	103	Zhang

¹ US 2005/0105553 A1 (Ex. 1005).

Ground	Claims Challenged	35 U.S.C. §	References
3	1–10	103	Zhang, TS 25.321 ²
4	1, 5, 6, and 10	103	Zhang, Lohr ³
5	1–10	103	Zhang, Lohr, TS 25.321

Pet. 4–5.

Petitioner relies on a declaration from its expert, Apostolos K. Kakaes, Ph.D. (Ex. 1003), and Patent Owner relies on a declaration from its expert, Mark Mahon, Ph.D. (Ex. 2001).

II. LEVEL OF ORDINARY SKILL AND CLAIM CONSTRUCTION

A. Level of Ordinary Skill in the Art

To determine the level of an ordinarily skilled artisan, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (quotation omitted).

Petitioner, citing Dr. Kakaes’s testimony, proposes that an ordinarily skilled artisan at the time of the invention likely would have had “a degree in electrical engineering, computer engineering, computer science, or related field with a[t] least two years of experience in a relevant wireless communications system, such as the Universal Mobile Telecommunications

² 3GPP TS 25.321 V6.5.0 3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Medium Access Control (MAC) protocol specification (Release 6), 3GPP (June 2005) (Ex. 1010).

³ USP 7,948,936 B2 (Ex. 1006).

System (UMTS).” Pet. 7–8 (citing Ex. 1003 ¶ 49). Petitioner further proposes that the ordinarily skilled artisan also would have been familiar with “basic wireless, cellular, and computer communications technologies and techniques, including data transmission and signaling.” *Id.* (citing Ex. 1003 ¶ 49). Petitioner also asserts that “[a]dditional formal education could make up for less professional experience, and additional professional experience could make up for less formal education.” *Id.* (citing Ex. 1003 ¶ 49).

In our Institution Decision, we accepted Petitioner’s proposed definition with one modification. Inst. Dec. 12–13. We determined that, arguably, the term “at least” creates unnecessary ambiguity, so we deleted that term from Petitioner’s definition and otherwise applied that definition. *Id.* at 13. Neither party has requested that we modify the definition we applied in our Institution Decision. PO Resp. 4–5; *see generally* Pet. Reply. Thus, we maintain that definition because it is not disputed and is appropriate for the subject matter of the ’873 patent. Ex. 1003 ¶ 49; Ex. 2001 ¶ 31.

B. Claim Construction

In an *inter partes* review proceeding based on a petition filed on or after November 13, 2018, a patent claim shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b) (2019). This rule adopts the same claim construction standard used by Article III federal courts, which follow *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc), and its progeny. Under this standard, the words of a claim are generally given their “ordinary and customary meaning,” which is the meaning a term would have to a person of ordinary skill at the time of the

invention, in the context of the entire patent including the specification. *See id.* at 1312–13.

For this Decision, we only need to construe one claim term: “non-zero grant,” recited in claims 1 and 6.

1. Parties’ Arguments Regarding the Construction of “Non-Zero Grant”

Petitioner proposes construing “non-zero grant” as “information from a Node-B giving permission to the WTRU to engage in data transmission according to said information.” Pet. 12. Petitioner quotes the disclosure from the ’873 patent specification (“Specification”) that a

wireless transmit/receive unit (WTRU) detects whether transmission of a medium access control (MAC) flow, such as a MAC dedicated transport channel flow, is prevented by a small non-zero grant. Transmission blocking may be detected when a non-zero grant is smaller than required for transmission of a MAC protocol data unit.

Id. (emphases omitted) (quoting Ex. 1001, code (57); citing Ex. 1003 ¶ 64). Petitioner also quotes the Specification’s disclosure that “the transmission of the SI alone may occur when the transmission of any, or in a specifically defined, MAC-d flow is stopped because the current non-zero grant is smaller than the minimum required to transmit the next MAC SDU, or RLC PDU, of the particular MAC-d flow.” *Id.* (emphasis omitted) (quoting Ex. 1001, 4:9–14).

Patent Owner argues that “non-zero grant” should be construed to mean a “power ratio greater than zero.” PO Resp. 9. Patent Owner asserts that the following passage in the Specification defines the term “grant” to mean a power ratio: “transmission of scheduling information (SI) is only allowed under certain conditions . . . such as if the user has a *grant* (*power*

ratio) of zero.” *Id.* at 7–8 (quoting Ex. 1001, 2:42–49) (emphasis by Patent Owner). Patent Owner asserts that the parenthetical reference to a power ratio is more than an illustrative example because the Specification identifies no other type of grant. *Id.* (citing Ex. 2001 ¶ 35). Further, Patent Owner argues that the Specification repeatedly refers to grants as power ratios. *Id.* (citing Ex. 2001 ¶¶ 35–36). Patent Owner also contends that a power ratio cannot be negative, so a “non-zero” power grant must be greater than zero. *Id.* at 9 (citing Ex. 2001 ¶ 38). Further, Patent Owner argues that, in the Related Litigation, the District Court construed “non-zero grant” to mean a “power ratio greater than zero.” *Id.* at 7 (citing Ex. 2009, 13).

In its Reply, Petitioner argues that the term “non-zero grant” is not limited to a power ratio. Pet. Reply 1. Petitioner asserts that the passage of the Specification with the parenthetical that Patent Owner relies upon is in the Background section of the Specification and refers to only one exemplary prior art system. *Id.* at 2. Further, Petitioner argues that its proposed construction correctly captures the function within the claims of the “non-zero grant.” *Id.* at 3. Additionally, Petitioner asserts that the Specification repeatedly uses the terms “granted power ratio” and “power ratio grant,” which means that the terms “power ratio” and “grant” are not interchangeable, and the applicant could have used the phrase “power ratio” in its claims if that was the intended meaning. *Id.* at 4–5.

In its Sur-reply, Patent Owner argues that the fact that the passage with the parenthetical that it relies upon is in the Background section of the Specification is of no consequence. PO Sur-reply 3. Patent Owner also disputes that the parenthetical reference to a power ratio merely describes how one exemplary prior art system works. *Id.* Patent Owner asserts that the

cited passage with the parenthetical refers to the 3GPP standard, and the claims of the '873 patent are directed to 3GPP devices and methods. *Id.*

2. Analysis

In our Institution Decision, based on the record at the time, we adopted Petitioner's proposed construction for "non-zero grant." Inst. Dec. 16–17. At that time, Patent Owner had not proposed a construction for "non-zero grant." Prelim. Resp. 3.

In this Decision, we adopt Patent Owner's proposed construction. *See TriVascular, Inc. v. Samuels*, 812 F.3d 1056, 1068 (Fed. Cir. 2016) ("[At the institution stage], the Board is considering the matter preliminarily without the benefit of a full record. The Board is free to change its view of the merits after further development of the record, and *should do so* if convinced its initial inclinations were wrong."). The intrinsic and extrinsic evidence of record support that proposed construction, and do not support Petitioner's. We further note that, in the Related Litigation, in an opinion issued after our Institution Decision, the District Court adopted Patent Owner's proposed construction.

a. The Intrinsic and Extrinsic Evidence Support Patent Owner's Proposed Construction

As set forth below, the Specification describes a "grant" as a "power ratio." Ex. 2001 ¶¶ 33–36. Pertinent extrinsic evidence (e.g., 3GPP TS 25.321 V7.1.0 Technical Specification (Ex. 1023) ("3GPP Technical Specification")) further describes a "grant" as a "power ratio." *Id.* ¶ 37. In addition, as Dr. Mahon testifies, and Petitioner does not dispute, a power ratio cannot be negative. *Id.* ¶ 38. Thus, the intrinsic and extrinsic evidence of record support construing a "non-zero grant" as a "power ratio greater than zero."

i. The Specification Describes a Grant as a Power Ratio

The Specification describes a “grant” as a “power ratio.” Ex. 2001 ¶¶ 33–36. First, when describing the current state of the art, the Specification has a parenthetical with the term “power ratio” following the term “grant”:

In the current state of the art, transmission of scheduling information (SI) is only allowed under certain conditions such as those described in 3GPP TS 25 .321, such as if the user has a *grant (power ratio)* of zero or has all its processes de-activated and has data to transmit, upon a change of E-DCH serving RLS (base station), or periodically, with a configurable period depending on whether the user has a grant or not.

Ex. 1001, 2:42-49 (emphasis added).

In *Novacor Chemicals, Inc. v. United States*, the Federal Circuit held that “general principles of construction support the view that a parenthetical is the definition of the term which it follows.” *Novacor Chemicals, Inc. v. United States*, 171 F.3d 1376, 1381 (Fed. Cir. 1999). An exception to this principle is when the parenthetical is merely an illustrative example. *Id.*

Novacor addressed an issue of regulatory construction and determined that the parenthetical at issue in that case—“(additional duties assessed upon liquidation or reliquidation)” —was merely an illustrative example of the regulatory term being construed—“supplemental duties.” *Novacor Chemicals, Inc.*, 171 F.3d at 1381. *Novacor* reached that conclusion because the code and involved regulation established that “supplemental duties” included “increased duties,” which the parenthetical excluded. *Id.*

Here, we determine that the term “power ratio” in the involved parenthetical in the Specification is a definition, and not merely an illustrative example, of a “grant.”

First, the Specification does not identify any other type of grant. Dr. Mahon testifies that the Specification does not provide an example of any other type of grant. Ex. 2001 ¶ 35. Petitioner offers no rebuttal expert testimony and identifies no other type of grant disclosed in the Specification. See Pet. Reply 1–5. We credit Dr. Mahon’s un rebutted testimony that the Specification does not identify any other type of grant. Ex. 2001 ¶ 35. Thus, the parenthetical at issue in this case does not exclude any grant described in the Specification (nor, as set forth in Section II.B.2.ii, any grant set forth by ordinary meaning of the term grant based on the extrinsic evidence of record).

Second, the Specification repeatedly describes a grant as a power ratio. Ex. 2001 ¶¶ 33–36. The Specification describes Node-B commands as conveyed by *grant* channels and expressed by *power ratios*: “Node-B commands are conveyed by absolute or relative *grant* channels” and “Node-B commands are expressed by a maximum *power ratio* over the power of the UL control channel (DPCCH).” Ex. 1001, 1:35–41 (emphases added). The Specification further describes a power ratio as determining how much data can be transmitted: “[t]he WTRU and Node-B are aware how much data can be transmitted for a given *power ratio*.” *Id.* at 1:52–53 (emphasis added). In the Specification, grants determine whether data can be transmitted. *Id.* at 2:42–49, 2:66–3:3. The Specification further describes a power ratio determining whether data can be transmitted as a grant: “[d]uring scheduled operation, WTRU transmissions from a given MAC-d flow can be completely interrupted, or ‘blocked,’ if the *granted power ratio* falls under the minimum required to transmit the RLC PDU at the head of buffer.” *Id.* at 2:12–14 (emphasis added). The Specification further describes a power

ratio grant: “[t]he *power ratio grant* required to transmit an E-TFC (MAC-e PDU) of a certain size is known by the WTRU 110, NB 120 and RNC.” *Id.* at 4:58–61 (emphasis added). Similarly, the Specification describes a grant as a power ratio in the following passage:

In another embodiment of the present invention, the data rate is managed through the use of a scheduling *grant*. In this embodiment, the transmission is allowed for a minimum number of PDUs (N_{min}) of the MAC-d flow for every new MAC-e transmission, without regard to the data rate imposed by the *power ratio* and without regard to the size of the PDU or PDUs.

Id. at 6:11–17 (emphases added). Another disclosure of a grant as a power ratio in the Specification is:

If the required *power ratio* to transmit the N_{min} PDUs is higher than the current *grant*, several options may be employed. Preferably, the power ratio is allowed to increase above the current *grant* to support the transmission of the PDUs. However, the *power ratio* may also stay at the current *grant*, with the WTRU 110 selecting the minimum E-TFC that can support the N_{min} PDUs.

Id. at 6:32–38 (emphases added). Thus, the Specification repeatedly describes a “grant” as a “power ratio.”

Third, Petitioner argues that the passage in the Specification with the parenthetical with the term power ratio is in the Background section of the Specification and is not a description of the invention of the ’873 patent. Pet. Reply 2. Petitioner asserts that, as such, the passage is merely a passing reference to an exemplary prior art system and does not clearly set forth a new definition for a claim term as required by *Bell Atlantic Network Services, Inc. v. Covad Communications Group, Inc.*, 262 F.3d 1258, 1268 (Fed. Cir. 2001). *Id.* We disagree. Although the involved passage in the Specification

appears in the Background section of the '873 patent, *Bell Atlantic* does not indicate that we should disregard that passage's teachings.

Bell Atlantic addressed the requirements for “redefining the meaning of particular claim terms away from the ordinary meaning.” *Bell Atlantic*, 262 F.3d at 1268. To redefine such claim terms, “the intrinsic evidence must ‘clearly set forth’ or ‘clearly redefine’ a claim term so as to put one reasonably skilled in the art on notice that the patentee intended to so redefine the claim term.” *Id.* Here, Patent Owner is not redefining the term “grant” away from its ordinary meaning. As indicated by both the Specification and the extrinsic evidence of record, the ordinary meaning for a “grant” in the pertinent field is a “power ratio.” *See* above and Section II.B.2.a.ii below.

Further, there is no requirement that a definition for a claim term appear only in the Detailed Description of the Preferred Embodiments. As set forth in Section II.B.2.a.ii below, the definition that the Specification provides for “grant” is the term’s ordinary meaning, and there is no reason that ordinary meaning cannot be provided when addressing the current state of the art in the Background section of the Specification. Further, as set forth above, the definition in the Background section is consistent with the teachings provided in the Specification’s Detailed Description of the Preferred Embodiments.

Fourth, as mentioned, Petitioner cites two disclosures in the Specification that it asserts support its contrary construction for “non-zero grant.” We address those disclosures in Section II.B.2.b below and find that those disclosures do not support such a construction nor undermine Patent Owner’s proposed construction.

Fifth, as mentioned, Petitioner argues that the Specification's use of the terms "granted power ratio" and "power ratio grant" means that the terms "grant" and "power ratio" are not the same, and that the applicant could have chosen a phrase that includes "power ratio" if that were the intended meaning. Pet. Reply 4–5. The use of the terms "granted power ratio" and, in particular, "power ratio grant" in the Specification could raise the possibility that a grant that is not a power ratio could exist. But neither the record nor Petitioner identifies any type of purported grant that is not a power ratio. *Id.* at 1–5. Despite making numerous references to grants, the Specification does not refer to any other type of grant, and Petitioner does not identify or offer evidence of any other type of grant. Ex. 2001 ¶ 35; Pet. Reply 4–5. Thus, although in isolation the terms "granted power ratio" and "power ratio grant" could leave open the possibility of grants that are not power ratios, on this record, we have no basis to find that any other type of grant exists (in the context of the '873 patent). *Seachange Int'l, Inc. v. C-COR, Inc.*, 413 F.3d 1361, 1369 (Fed. Cir. 2005) (even claim differentiation "[cannot] broaden claims beyond their correct scope, determined in light of the specification and prosecution history and any relevant extrinsic evidence.").

Sixth, Petitioner further argues that Patent Owner's proposed construction for "grant" should be rejected because "even where the specification describes only a single embodiment, absent a 'clear intention to limit the claim scope,' it is improper to limit the scope of broad claim language by importing extraneous details from the patent's specification." Pet. Reply 4 (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1117 (Fed. Cir. 2004); citing *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004)). We disagree. Patent

Owner's proposed construction does not import extraneous details from the Specification. As set forth above, the Specification repeatedly describes a grant as a power ratio both when describing preferred embodiments and when describing the state of the current art. Thus, Patent Owner's proposed construction does not import a limitation from a single embodiment. Further, as indicated above and as set forth in Section II.B.2.a.ii below, the ordinary meaning of the term "grant," to an ordinarily skilled artisan based on the Specification and extrinsic evidence, is a power ratio. Thus, Patent Owner's proposed construction does not attempt to limit a broader, ordinary meaning for "non-zero grant," rather it sets forth that term's ordinary meaning. In contrast, as set forth in Section II.B.2.b below, Petitioner's proposed construction limits the meaning of the term "non-zero grant" by importing extraneous details from the Specification that limit the ordinary meaning of "grant."

After considering the Specification and the parties' arguments and evidence, we credit Dr. Mahon's testimony that the term "grant" in the Specification refers to a power ratio. Ex. 2001 ¶¶ 33–36.

ii. Extrinsic Evidence Supports Construing a Grant as a Power Ratio

Patent Owner provides extrinsic evidence that the 3GPP standards as of the earliest claimed priority date for the '873 patent (August 21, 2006) used the term "grant" to refer to a power ratio. Ex. 2001 ¶ 37; *see* Ex. 1001, code (60); Pet. 5; PO Resp. 13. 3GPP standards are pertinent evidence of the ordinary meaning of the term "non-zero grant" to an ordinarily skilled artisan because the Specification repeatedly references 3GPP standards in its description of background art and preferred embodiments. The Background of the Specification begins: "[t]he Third Generation Partnership Project

(3GPP) Release 6 defines fast control of wireless transmit/receive unit (WTRU) transmissions through Node-B based scheduling in HSUPA [high speed uplink packet access].” Ex. 1001, 1:25–28. The Background further expressly references 3GPP TS 25.321, describing: “[i]n the current state of the art, transmission of scheduling information (SI) is only allowed under certain conditions such as those described in 3GPP TS 25.321.” *Id.* at 2:42–44.

The Detailed Description of the Preferred Embodiments of the Specification similarly refers to the 3GPP standards: “the MGI [minimum grant information] may be encoded to consist of 5 bits and represent a power ratio with a mapping, such as bit mapping, similar to that found in the 3GPP TS 25.212 specification.” Ex. 1001, 5:38–41; *see also id.* at 5:45–47. The Detailed Description further states: “Under the current 3GPP standard, (e.g., TS 25.309 Release 6), a MAC-d flow is managed through either non-scheduled transmissions or scheduled grants, but not both.” *Id.* at 6:18–20.

Further, the challenged claims recite 3GPP methods and devices. Independent claim 1 recites: “[a] method performed by a Third Generation Partnership Project (3GPP) wireless transmit/receive unit.” Ex. 1001, 7:36–38. Independent claim 6 recites: “[a] Third Generation Partnership Project (3GPP) wireless transmit/receive unit.” *Id.* at 8:17–18. Claims 2–5 and 7–10 depend respectively from claims 1 and 6. *Id.* at 8:7–37.

Further demonstrating the relevance of 3GPP standards, two of the five challenges in this IPR include a 3GPP technical specification (dated 2005) as an asserted reference. Pet. 4–5; Ex. 1010, 1. Thus, an ordinarily skilled artisan would view 3GPP standards as relevant evidence for determining the ordinary meaning of the terms in the ’873 patent claims.

Dr. Mahon testifies that the 3GPP standards as of the effective filing date used the term “grant” to refer to a power ratio. Ex. 2001 ¶ 37. The 3GPP Technical Specification (dated June 2006⁴) supports this testimony.⁵

The 3GPP Technical Specification describes grants as power ratios. This Technical Specification provides the following description for “Maximum_Serving_Grant”: “The variable *Maximum_Serving_Grant* indicates the maximum E-DPDCH to DPCCH *power ratio* that the UE is allowed to use for scheduled data while the timer *Non_Serving_RG_Timer* has not expired.” Ex. 1023, 8 (emphases added). Similarly, for “Minimum Grant,” the 3GPP Technical Specification states: “The value *Minimum_Grant* corresponds to the minimum E-DPDCH to DPCCH *power ratio* that the UE considers. This value is $(5/15)^2$.” *Id.* (emphases added). Further, the 3GPP Technical Specification describes the term “Absolute Grant Value” as “indicat[ing] the maximum E-DCH traffic to pilot *ratio* (E-DPDCH/DPCCH) that the UE is allowed to use.” *Id.* at 55 (emphasis added). The maximum E-DCH traffic to pilot ratio is a power ratio. Ex. 2001 ¶ 37; Ex. 1023, 8 (“maximum E-DPDCH to DPCCH power ratio”). The 3GPP Technical Specification also describes Relative Grants as power ratios. Ex. 2001 ¶ 37; Ex. 1023, 53–54 (“handling of the Relative *Grant* signaling is

⁴ The 3GPP Technical Specification is dated 2006-06. Ex. 1023, 1.

⁵ Petitioner acknowledges the relevance of the 3GPP Technical Specification for purposes of construing claim terms of the ’873 patent. *See* Pet. 9–12 (relying on the 3GPP Technical Specification as support for Petitioner’s proposed constructions of “scheduling information (SI)” and “medium access control-d (MAC-d) flow,” and arguing that the document shows how a person of ordinary skill in the art would have understood the terms “in the context of a 3GPP WTRU (like that disclosed in [the ’873 patent])”; Ex. 1003 ¶¶ 55–56, 61 (same); *see also* Tr. 31:11–21.

based on the Scheduling *Grant* table shown in Table 9.2.5.2.1.1. . . .

Determine the lowest *power ratio* in the SG-table.” (emphases added)).

Petitioner offers no extrinsic evidence, other than the testimony of Dr. Kakaes, regarding the ordinary meaning of the term “grant,” and Dr. Kakaes cites no extrinsic evidence to support his definition of the term “non-zero grant.” Pet. 12; Pet. Reply 1–5; Ex. 1003 ¶¶ 63–65. Dr. Kakaes does not separately address the meaning of “grant.” Ex. 1003 ¶¶ 63–65.

We find Dr. Mahon’s testimony and the 3GPP Technical Specification persuasive. As set forth above, the 3GPP Technical Specification describes grants as power ratios—a fact that Petitioner does not dispute. Pet. Reply 1–5. Further, as set forth above, in light of the Specification’s references to 3GPP standards and the 3GPP recitations in the preambles of claims 1 and 6, 3GPP standards from the time of the ’873 patent are highly relevant evidence to an ordinarily skilled artisan of the ordinary meaning of the terms “grant” and “non-zero grant.”

iii. A Non-zero Power Ratio is a Power Ratio Greater than Zero

Dr. Mahon testifies that a “non-zero grant” should be construed as “a power ratio greater than zero.” Ex. 2001 ¶ 33. Dr. Mahon explains that a power ratio cannot be negative, so a “non-zero” power grant must be greater than zero. *Id.* ¶ 38. Petitioner does not dispute Dr. Mahon’s testimony that a power ratio cannot be negative. Pet. Reply 1–5. Petitioner further does not dispute that if a “grant” is construed to be a “power ratio,” a “non-zero grant” should be construed to be a “power ratio greater than zero.” *Id.* We credit Dr. Mahon’s testimony that a power ratio cannot be negative. Ex. 2001 ¶ 38. Thus, in light of the Specification’s and extrinsic evidence’s teachings that a

“grant” is a “power ratio,” we construe “non-zero grant” to be a “power ratio greater than zero.”

*b. The Intrinsic and Extrinsic Evidence Do Not Support
Petitioner’s Proposed Construction*

As mentioned, Petitioner proposes construing the term “non-zero grant” as “information from a Node-B giving permission to the WTRU to engage in data transmission according to said information.” Pet. 12. To support this construction, as mentioned, Petitioner cites the testimony of Dr. Kakeas and two disclosures in the Specification. *Id.* Dr. Kakeas relies on the same disclosures to support his opinion that Petitioner’s proposed construction should be adopted. Ex. 1003 ¶¶ 64–65.

The first cited disclosure that Petitioner and Dr. Kakaes rely upon reads:

A wireless transmit/receive unit (WTRU) detects whether transmission of a medium access control (MAC) flow, such as a MAC dedicated transport channel flow, is prevented by a small non-zero grant. Transmission blocking may be detected when a non-zero grant is smaller than required for transmission of a MAC protocol data unit.

Ex. 1001, 2:67–3:6⁶ (cited by Pet. 12, Ex. 1003 ¶ 64). The second disclosure that Petitioner and Dr. Kakaes rely upon reads: “the transmission of the SI alone may occur when the transmission of any, or in a specifically defined, MAC-d flow is stopped because the current non-zero grant is smaller than the minimum required to transmit the next MAC SDU, or RLC PDU, of the particular MAC-d flow.” Ex. 1001, 4:9–14 (cited by Pet. 12, Ex. 1003 ¶ 65).

⁶ Petitioner indicates that this disclosure appears in the Abstract of the ’873 patent, but it actually appears at column 2, line 67 through column 3, line 6. Pet. 12.

These combined disclosures do not support Petitioner’s proposed construction. Nothing from these disclosures indicates that the ordinary meaning of the term “non-zero grant” would require information *from a Node-B* that gives permission *to a WTRU*. These disclosures merely describe that transmission blocking can occur when a grant is small and that scheduling information can be transmitted when a grant is smaller than needed to transmit the next MAC SDU, or RLC PDU, of the particular MAC-d flow. Further, the second cited disclosure is preceded by “[f]or example,” indicating that it is describing an exemplary embodiment.” Ex. 1001, 4:9–14. We see no justification in reading in limitations from these disclosures that a non-zero grant must be information *from a Node-B* that gives permission *to a WTRU*.

Further, nothing from the above-cited disclosures undermines Patent Owner’s proposed construction for “non-zero grant” of a “power ratio greater than zero”; Petitioner has not set forth any explanation of how these passages would preclude construing a “grant” as a “power ratio.” Pet. Reply 1–5.

As mentioned, Petitioner cites no extrinsic evidence, other than Dr. Kakaes’s testimony, to support its proposed construction, and Dr. Kakaes cites no extrinsic evidence to support his opinion that Petitioner’s proposed construction should be adopted. Pet. 12; Pet. Reply 1–5; Ex. 1003 ¶¶ 63–65. Further, Dr. Kakaes never addresses the disclosures in the Specification that describe grants and power ratios or the related descriptions in the 3GPP Technical Specification. Ex. 1003 ¶¶ 63–65. Thus, we give little weight to Dr. Kakaes’s testimony regarding how the term “non-zero grant” should be construed.

Accordingly, we determine that neither the intrinsic nor the extrinsic evidence of record supports Petitioner's proposed construction.

c. The District Court Adopted Patent Owner's Proposed Construction

As mentioned, the '873 patent is being asserted in the Related Litigation. In that litigation, the district court construed the term "non-zero grant." Ex. 2009, 13. The parties in this IPR are parties in the Related Litigation and proposed the same constructions for "non-zero grant" in the Related Litigation that they propose here. *Id.* at 1, 13. The parties briefed the proposed constructions to the District Court, which held a claim construction hearing. *Id.* at 3. After considering the parties' arguments, evidence, and proposed constructions, the District Court adopted Patent Owner's proposed construction. *Id.* at 13. The District Court relied on the Specification's disclosure that "transmission . . . of scheduling information (SI) is only allowed under certain conditions . . . such as if the user has a grant (power ratio) of zero." *Id.* (citing '873 patent (Ex. 1001 in this proceeding), 2:42–49). The District Court held that the parenthetical reference to a power ratio in this disclosure was more than an illustrative example. *Id.*

Although we are not bound to accept a district court's construction of a claim term, we apply the same claim construction standard as a district court. 37 C.F.R. § 42.100(b) (2019). In addition, we must consider a district court's construction (*id.*) and accord it appropriate weight (Patent Trial and Appeal Board Consolidated Trial Practice Guide (Nov. 2019), 47, available at <https://www.uspto.gov/TrialPracticeGuideConsolidated>). Here, we agree with the District Court that the parenthetical reference to a power ratio in the Specification is definitional, and not merely an illustrative example. *See*

Section II.B.2.a.i above. Further, we agree with the District Court that Patent Owner’s proposed construction for “non-zero grant” should be adopted. Ex. 2009, 13.

d. Summary

In sum, the intrinsic and extrinsic evidence of record supports Patent Owner’s proposed construction, which the District Court adopted. We construe a “non-zero grant” as a “power ratio greater than zero.”

III. ANALYSIS OF ASSERTED GROUNDS

A. Ground 1: Asserted Anticipation by Zhang

Petitioner asserts that Zhang anticipates claims 1, 5, 6, and 10. Pet. 4.

1. Zhang

Zhang discloses “a wireless communication system including a wireless transmit/receive unit (WTRU) and a Node-B.” Ex. 1005 ¶ 2. This system “provid[es] WTRU uplink (UL) traffic information to the Node-B for scheduling enhanced uplink (EU) transmissions.” *Id.*

Figure 1 of Zhang is shown below:

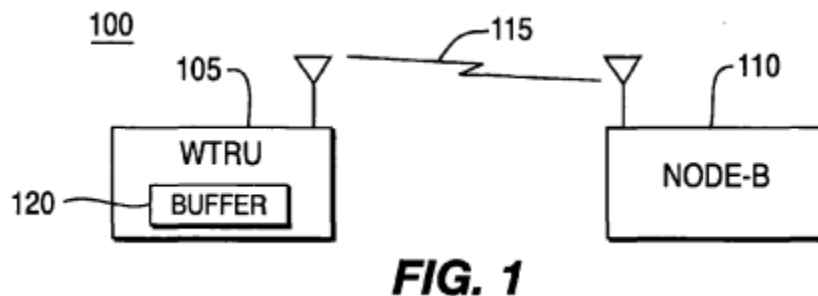


Figure 1 above shows wireless communication system 100 with WTRU 105, Node-B 110, wireless signals 115, and buffer 120. *Id.* ¶ 21.

“The EU data is generated and stored in a buffer of the WTRU.” Ex. 1005, code (57). “The WTRU transmits a message to the Node-B including a request for a desired transport format combination (TFC) or data

traffic indicator.” *Id.* “The Node-B schedules one or more allowed EU data transmissions between the WTRU and the Node-B by transmitting an EU data scheduling message to the WTRU.” *Id.* “The WTRU transmits all of the EU data stored in the buffer to the Node-B if the allowed EU data transmissions are sufficient to support transmission of all of the EU data stored in the buffer.” *Id.* “Otherwise, the WTRU transmits a portion of the EU data along with the desired TFC or detailed traffic volume measurement (TVM) information to the Node-B.” *Id.*

Figure 2 of Zhang is shown below:

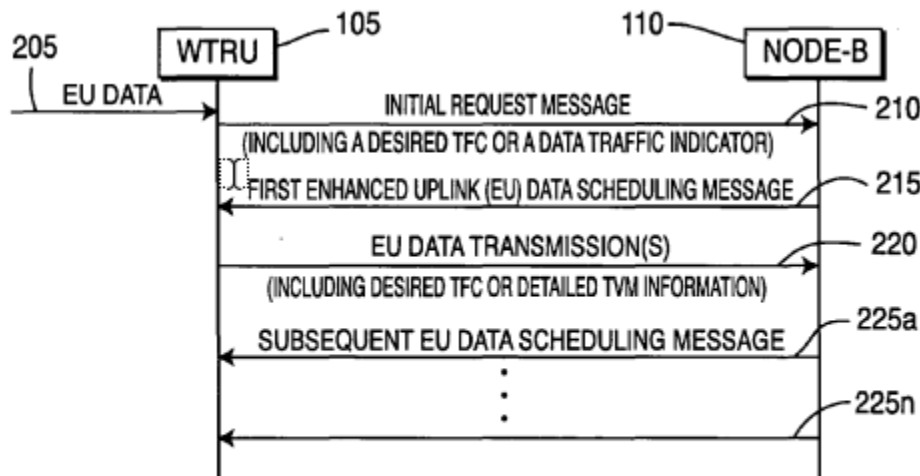


FIG. 2

Figure 2 above “is a signal flow diagram for the wireless communication system when one or more EU data transmissions allowed by a first EU data scheduling message are not sufficient to transmit all of the EU data stored in the buffer 120 of the WTRU 105.” Ex. 1005 ¶ 22. “EU data 205 is generated at the WTRU 105 and is stored in the buffer 120 of the WTRU 105.” *Id.* “When the quantity of the EU data in the buffer 120 exceeds an established EU data buffer threshold, the WTRU 105 sends an initial request message 210 to the Node-B 110 via an EU signaling channel.” *Id.*

“The initial request message 210 may include a desired TFC [transport format combination] or a data traffic indicator.” Ex. 1005 ¶ 23. “[U]pon receiving the initial request message 210, the Node-B 110 schedules one or more EU data transmissions between the WTRU 105 and the Node-B 110 via a first EU data scheduling message 215.” *Id.* ¶ 24. “In response to receiving the first EU data scheduling message 215, the WTRU 105 sends one or more EU data transmissions 220 to the Node-B 110 allowed by the first EU data scheduling message 215.” *Id.* “If the EU data transmissions allowed by the first EU data scheduling message 215 are not sufficient to transmit all of the EU data buffered in the WTRU 105, the WTRU 105 sends EU data transmissions 220 including desired TFC information to the Node-B 110.” *Id.* “The desired TFC is used by the Node-B 110 to determine and generate subsequent scheduling messages 225a–225n.” *Id.*

“Alternatively, in lieu of the desired TFC information, detailed TVM [traffic volume measurement] information may be provided with the EU data transmissions 220.” Ex. 1005 ¶ 25. “The detailed TVM information may indicate the amount of buffered data associated with individual traffic flows (channels) that can be associated with priority classes mapped to the EU dedicated channel (EU-DCH).” *Id.*

2. Claim 1

Claim 1 recites the following limitation:

triggering transmission of scheduling information (SI), from the WTRU to a Node-B, *in response to the WTRU having a non-zero grant smaller than needed* preventing the WTRU from sending a medium access control protocol data unit (PDU) of any of a plurality of scheduled medium access control-d (MAC-d) flows. [“responsive limitation of claim 1”]

Ex. 1001, 7:36–8:6 (emphasis added).

Petitioner does not argue, let alone prove, that Zhang discloses the transmission of scheduling information “in response to the WTRU having a non-zero grant smaller than needed” when “non-zero grant” is construed as a “power ratio greater than zero.” Pet. 25–29; Pet. Reply 1–5, 12–13. Thus, Petitioner has not proven that claim 1 is anticipated by Zhang.

3. Claim 5

Claim 5 depends on claim 1. Ex. 1001, 8:15–16. Petitioner relies on its showing for claim 1 for the limitations that claim 5 incorporates from claim 1. Pet. 29–30. Thus, Petitioner has not proven that claim 5 is anticipated by Zhang.

4. Claim 6

Claim 6 is independent and recites:

circuitry configured to trigger transmission of scheduling information (SI), from the WTRU to a Node-B, *in response to the WTRU having a non-zero grant smaller than needed* preventing the WTRU of transmission of a medium access control protocol data unit (PDU) of any of a plurality of scheduled medium access control-d (MAC-d) flows. [“responsive limitation of claim 6”]

Ex. 1001, 8:17–25 (emphasis added).

For the above responsive limitation of claim 6, Petitioner relies on its showing for claim 1. Pet. 31. Thus, Petitioner has not proven that claim 6 is anticipated by Zhang.

5. Claim 10

Claim 10 depends on claim 6. Ex. 1001, 8:36–37. Petitioner relies on its showing for claim 6 for the limitations that claim 10 incorporates from claim 6. Pet. 31. Thus, Petitioner has not proven that claim 10 is anticipated by Zhang.

B. Ground 2: Asserted Obviousness over Zhang

Petitioner asserts that claims 1, 5, 6, and 10 would have been obvious over Zhang. Pet. 5. For the responsive limitations of claims 1 and 6, Petitioner relies on its showing for Ground 1. *Id.* at 32–33. Thus, Petitioner has not proven that claims 1 and 6 would have been obvious over Zhang. For claims 5 and 10, Petitioner also relies on its showing for Ground 1. *Id.* at 33. Thus, Petitioner has not proven that claims 5 and 10 would have been obvious over Zhang.

C. Ground 3: Asserted Obviousness over Zhang and TS 25.321

Petitioner asserts that claims 1–10 would have been obvious over Zhang and TS 25.321. Pet. 5. For this ground, Petitioner argues “[t]o the extent one might argue that Zhang does not . . . sufficiently disclose a WTRU configured to process ‘a plurality of scheduled medium access control-d (MAC-d) flows,’ it would have been obvious to include that functionality in the WTRU of Zhang in view TS 25.321.” *Id.* at 34 (emphasis omitted). For the responsive limitations of claims 1 and 6, Petitioner relies on its showing for Ground 1. *Id.* at 34–40, 48. Thus, Petitioner has not proven that claims 1–10 would have been obvious over Zhang and TS 25.321.

D. Ground 4: Asserted Obviousness of Claims 1, 5, 6, and 10 over Zhang and Lohr

Petitioner asserts that claims 1, 5, 6, and 10 would have been obvious over Zhang and Lohr. Pet. 5. For this ground, Petitioner argues “[t]o the extent one might argue that Zhang alone, or Zhang in combination with TS 25.321 do not does not sufficiently disclose a WTRU configured to process ‘a plurality of scheduled medium access control-d (MAC-d) flows,’ it would have also been obvious to include that functionality in the WTRU of Zhang in view” of Lohr. *Id.* at 52–53 (emphasis omitted). For the responsive

limitations of claims 1 and 6, Petitioner relies on its showing for Ground 1. *Id.* at 52–55. Thus, Petitioner has not proven that claims 1, 5, 6, and 10 would have been obvious over Zhang and Lohr.

E. Ground 5: Asserted Obviousness of Claims 1–10 over Zhang, Lohr, and TS 25.321

Petitioner asserts that claims 1–10 would have been obvious over Zhang, Lohr, and TS 25.321. Pet. 5. For this ground, Petitioner argues that claims 1, 5, 6, and 10 would have been obvious over Zhang and Lohr for the reasons set forth for Grounds 1–4. *Id.* at 56. Thus, Petitioner has not proven that claims 1–10 would have been obvious over Zhang, Lohr, and TS 25.321. See Sections III.A–D above.

IV. CONCLUSION

As set forth in the following table, Petitioner has not proven that any of the challenged claims are unpatentable:

Claims	35 U.S.C. §	References	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 5, 6, 10	102	Zhang		1, 5, 6, 10
1, 5, 6, 10	103	Zhang		1, 5, 6, 10
1–10	103	Zhang, TS 25.321		1–10
1, 5, 6, 10	103	Zhang, Lohr		1, 5, 6, 10
1–10	103	Zhang, Lohr, TS 25.321		1–10
Overall Outcome				1–10

V. ORDER

It is:

ORDERED that claims 1–10 of the '873 patent have not been shown, by a preponderance of the evidence, to be unpatentable; and

FURTHER ORDERED that because this is a Final Written Decision, the parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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