

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

F5 NETWORKS, INC.,
Petitioner,

v.

WSOU INVESTMENTS, LLC d/b/a BRAZOS LICENSING AND
DEVELOPMENT,
Patent Owner.

IPR2022-00107
Patent 7,860,000 B2

Before THU A. DANG, BRIAN J. McNAMARA, and
JOHN A. HUDALLA, *Administrative Patent Judges*.

DANG, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

A. *Background*

In response to a Petition (Paper 1, “Pet.”) filed by F5 Networks, Inc. (“Petitioner”), we instituted *inter partes* review of claims 1–14, 16, 17, 19, 21, 22, 24, 26, 27, and 29 (“the challenged claims”) of U.S. Patent No. 7,860,000 B2 (Ex. 1001, “the ’000 patent”). See Paper 8 (“Dec. Inst.”). During trial, WSOU Investments, LLC d/b/a Brazos Licensing and Development (“Patent Owner”) filed a Response. Paper 10 (“PO Resp.”). The parties did not file any other papers regarding the merits after institution, and neither party requested oral argument in this case.

We have jurisdiction under 35 U.S.C. § 6. This Decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of the claims on which we instituted trial. Based on the record before us, Petitioner has shown by a preponderance of the evidence that claims 1–14, 16, 17, 19, 21, 22, 24, 26, 27, and 29 of the ’000 patent are unpatentable.

B. *Related Proceedings*

The parties identify the ’000 patent as the subject of *WSOU Investments, LLC d/b/a Brazos Licensing and Development v. F5 Networks, Inc.*, Civil Action No. 2:21-cv-00123 (W.D. Wash. Jan. 29, 2021). Pet. 77; Paper 3, 2. Petitioner also indicates that Patent Owner previously filed a patent infringement action against Petitioner in *WSOU Investments, LLC d/b/a Brazos Licensing and Development v. F5 Networks, Inc.*, Civil Action No. 3:20-cv-00720 (E.D. Va. Sept. 15, 2020). Pet. 77.

C. The '000 Patent

The '000 patent, titled “Apparatus, Methods and Computer Program Products Providing Estimation of Activity Factor and Enhanced Radio Resource Management,” issued on December 28, 2010, from Application No. 11/985,611, filed on November 15, 2007. Ex. 1001, codes (54), (45), (21), (22).

The '000 patent relates to performing admission control of wireless communication system users in, for example, a system that includes high-speed downlink packet access (HSDPA). *Id.* at 1:17–21, 2:7–12. To perform admission control for a new user having a certain priority and certain requirements, the admission control function needs to know the required power of existing users. *Id.* at 2:7–12. The required power depends on the quality of service (QoS) requirements of the existing users, wherein this required power is defined as “the minimum necessary power for a given priority class to meet the Guaranteed Bit Rate” for all the established connections belonging to this priority class. *Id.* at 2:12–18. According to the '000 patent, the controller needs to have knowledge of the activity factor (AF) of the users in order to know the actual required power per priority class, wherein the activity factor follows the user behavior and defines the percentage of time that the user (or the user equipment associated with the user) is active. *Id.* at 2:19–24.

The '000 patent's method includes estimating the activity factor for a priority class based at least in part on a provided bit rate for the priority class and a guaranteed bit rate of the priority class, and then using that estimated activity factor to estimate at least one network-related parameter. *Id.*

at 2:44–49. The priority class is identified using a scheduling priority indicator (SPI), and the estimated network-related parameter is indicative of at least one of (1) a power used for existing connections of the priority class, (2) a power used for existing HSDPA connections of the priority class, and (3) a QoS factor in terms of bit rate. *Id.* at 8:3–18. The method further comprises averaging the estimated activity factor overall high-speed downlink shared channel connections belonging to the priority class. *Id.* at 8:13–16.

D. The Challenged Claims

Of the challenged claims (claims 1–14, 16, 17, 19, 21, 22, 24, 26, 27, and 29), claims 1, 6, 11, 16, 21, and 26 are the independent claims. Claims 2–5 depend from claim 1, claims 7–10 depend from claim 6, claims 12–14 depend from claim 11, claims 17 and 19 depend from claim 16, claims 22 and 24 depend from claim 21, and claim 27 depends from claim 26. Claim 1 is illustrative and is reproduced below:

1. A method comprising:

estimating, by a processor, an activity factor for a priority class based on a provided bit rate for the priority class and a guaranteed bit rate of the priority class, wherein the activity factor defines a percentage of time that a user is active; and

using, by the processor, the estimated activity factor to estimate at least one network-related parameter.

Ex. 1001, 16:34–41.

E. Asserted Grounds of Unpatentability

We instituted *inter partes* review of all challenged claims on all challenges in the Petition. Petitioner asserts that claims 1–14, 16, 17, 19, 21,

22, 24, 26, 27, and 29 of the '000 patent are unpatentable based on the following grounds (Pet. 3):

Claim(s) Challenged	35 U.S.C. §¹	Reference(s)/Basis
1–14, 16, 17, 19, 21, 22, 24, 26, 27, 29	103	Duan ²
1–14, 16, 17, 19, 21, 22, 24, 26, 27, 29	102	Duan
1–14, 16, 17, 19, 21, 22, 24, 26, 27, 29	102	Pedersen ³
1–14, 16, 17, 19, 21, 22, 24, 26, 27, 29	103	Pedersen

Petitioner relies on the declaration of Sandeep Chatterjee, Ph.D. (Ex. 1005) in support of its unpatentability contentions.

II. ANALYSIS

A. *Level of Ordinary Skill in the Art*

In determining whether an invention would have been obvious at the time it was made, we consider the level of ordinary skill in the pertinent art at the time of the invention. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). In our analysis, various factors may be considered, including the

¹ The Leahy-Smith America Invents Act (AIA), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. §§ 102, 103, effective March 16, 2013. Because the application from which the '000 patent issued was filed before this date, the pre-AIA versions of §§ 102, 103 apply.

² Japanese Patent Publication No. 2006-115410A, published April 27, 2006, filed October 18, 2004 (Exs. 1007–1008, “Duan”).

³ U.S. Patent Publication No. 2007/0077957 A1, published April 5, 2007, filed September 18, 2006 (Ex. 1009, “Pedersen”).

“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 marks omitted). Furthermore, the prior art itself can reflect the appropriate level of ordinary skill in the art. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

Relying on the declaration of Dr. Chatterjee, Petitioner contends that a person of ordinary skill in the art (POSITA) at the time of the invention of the '000 patent would have had “at least a Bachelor’s degree in electrical engineering, computer science, telecommunication engineering, or the equivalent and at least two years’ experience with communication and/or telecommunications systems or a related field,” wherein “[a]dditional education could substitute for professional experience, and vice versa.” Pet. 16 (citing Ex. 1005 ¶ 15). Patent Owner “does not offer a competing definition” for a POSITA. *See* PO Resp. 3.

We adopt and apply Petitioner’s proposed definition of a POSITA at the time of the claimed invention because, based on the record, this proposal is consistent with the '000 patent, the asserted prior art, and is supported by the testimony of Dr. Chatterjee. We note that the applied prior art comports with this level of skill. *See Okajima*, 261 F.3d at 1355.

B. Claim Construction

We construe each claim “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b). Under this standard, claim terms are generally given their plain and ordinary meaning as would have been understood by a POSITA at the

time of the invention and in the context of the entire patent disclosure.
Phillips v. AWH Corp., 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc).

Petitioner contends that it “does not believe any terms in the ’000 patent require construction to resolve the patentability disputes in this proceeding.” Pet. 17. Patent Owner similarly “does not contend that any terms require construction.” PO Resp. 3.

We determine that it is unnecessary to construe any claim term expressly to resolve the disputed issues before us. *See, e.g., Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

C. Principles of Law

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a POSITA to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness.⁴ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

⁴ Neither party presents arguments regarding objective evidence of nonobviousness in the instant proceeding.

D. Obviousness over Duan under 35 U.S.C. § 103 (Ground 1)

Petitioner contends that claims 1–14, 16, 17, 19, 21, 22, 24, 26, 27, and 29 of the '000 patent would have been obvious over Duan. Pet. 22–57. In response, Patent Owner contends Petitioner fails to prove any of the challenged claims would have been obvious over Duan. PO Resp. 4–16. We summarize the asserted prior art below.

1. Duan

Duan, titled “Base Station Device, Mobile Station Device, and Transmission Rate Control Method,” is directed to a method that enables “appropriate transmission rate control.” Ex. 1008, codes (54), (57). In Duan, a base station device is furnished with an uplink scheduling component that calculates and transmits the preferred transmit power reduction rate for a subset of mobile station devices that are candidates for transmit power reduction. *Id.* at code (57). A mobile station device receives the preferred transmit power reduction rate to obtain a direct measure of transmit power reduction to select the appropriate transmit power and corresponding appropriate transmission rate. *Id.*

In an embodiment, a base station device includes an uplink transmission rate measuring component and an uplink scheduling component. *Id.* ¶ 115. The uplink transmission rate measuring component receives data output from an error correction coding component to measure the average uplink transmission bit rate for each mobile station device. *Id.*

A decision is made as to whether a mobile station device has some leeway based on a determination that either (1) the difference between the measured average uplink transmission bit rate and the minimum guaranteed rate is greater than a prescribed threshold; or (2) the ratio of the measured

average uplink transmission bit rate to the minimum guaranteed rate is greater than a prescribed threshold. *Id.* ¶ 118.

A base station device selects, as candidates for transmit rate reduction, (1) mobile station devices in soft handover that specified the base station device as a non-priority base station, wherein the mobile station devices also belong to a QoS class without a designated minimum guaranteed rate; or (2) mobile station devices in soft handover that designated the base station device as a non-priority base station, wherein the mobile station devices also belong to a QoS class with a designated minimum guaranteed rate but the difference between the average bit rate and the minimum guaranteed rate is greater than a prescribed threshold. *Id.* ¶ 150.

By selecting as candidates for transmission rate reduction only those mobile station devices belonging to a QoS class without a defined minimum guaranteed rate, or belonging to a QoS class with a defined minimum guaranteed rate but with some leeway relative to the minimum guaranteed rate, it becomes possible to reduce the chance that mobile station devices belonging to a QoS class with a defined minimum guaranteed rate, i.e., high-priority mobile station devices, will not meet their QoS. *Id.* ¶ 151. By reducing the amount by which the transmission rate of any given individual mobile station device is decreased, it is also possible to prevent the transmission rate of any given mobile station device from plunging abruptly. *Id.*

In an embodiment, an uplink scheduling component is provided to calculate the preferred transmit power reduction rate for those mobile station devices in soft handover during uplink packet communication that are candidates for transmit power reduction, and to transmit this preferred

transmit power reduction rate. *Id.* ¶ 152. This makes it possible for a mobile station device that received a preferred transmit power reduction rate to obtain a direct measure of transmit power reduction to select the appropriate transmit power and the corresponding appropriate transmission rate. *Id.* ¶ 153. With the base station device, a mobile station device is able to more rapidly adjust to the appropriate transmit power according to the preferred transmit power reduction rate, thereby making it possible to more rapidly adjust to the appropriate receive power level. *Id.*

2. Analysis

Petitioner contends that the '000 patent “estimates an activity factor based on two data rates: a provided bit rate for the priority class and a guaranteed bit rate for the priority class” (Pet. 14 (citing Ex. 1001, 3:55–62, Fig. 4)), and the estimate activity factor is then “used to estimate a network-related parameter, which can be used for example to determine whether the user device is admitted to a corresponding network,” wherein “[e]xemplary network-related parameters include power for communication connection and transmission, and the bit rate for satisfying a QoS requirement.” *Id.* (citing Ex. 1001, 7:64–8:2, 8:7–13, Fig. 4).

Petitioner then contends that, as the patentees acknowledged during prosecution, “an activity factor was ‘known by one of ordinary skill in the art at the time of the [alleged] invention’ to ‘define[] a percentage of time that a user is active.’” Pet. 1 (citing Ex. 1003, 1). Further, relying on the supporting testimony of its expert, Dr. Chatterjee, Petitioner contends that “[n]ot only was using ‘a provided bit rate for the priority class and a guaranteed bit rate of the priority class’ known in determining an ‘activity factor,’” as in Duan, “it was also obvious” to a POSITA. *Id.* at 12 (citing

Ex. 1005 ¶ 44). Petitioner then cites to Dr. Chatterjee’s testimony that it was “well known to use the estimated activity factor to estimate and adjust various network parameters, including a power used for existing connections of the priority class and a quality of service factor in terms of bit rate.” *Id.* at 1 (citing Ex. 1005 ¶¶ 91–92).

Having reviewed Petitioner’s and Patent Owner’s contentions and supporting evidence in the complete record, we determine Petitioner has demonstrated by a preponderance of the evidence that claims 1–14, 16, 17, 19, 21, 22, 24, 26, 27, and 29 would have been obvious over Duan. We address in detail Petitioner’s contentions and Patent Owner’s arguments with respect to the limitations of the challenged claims.

- a. Independent claims 1, 6, 11, 16, 21, and 26
 - i. *Preamble - “A method”(claims 1 and 16); “A non-transitory program storage device”(claims 6 and 21); “An apparatus”(claims 11 and 26).*

With respect to the preambles of claims 1 and 16, Petitioner contends that “Duan describes ‘a transmission rate control **method** that enable[s] appropriate transmission rate control.” Pet. 29 (citing Ex. 1008, Abstract).

With respect to the preambles of claims 6 and 21, Petitioner contends that “Duan relates to communication systems using ‘High Speed Uplink Packet Access’ (‘HSUPA’) networks,” wherein “HSUPA is digital and requires a computer to perform its functionality.” Pet. 30 (citing Ex. 1008 ¶ 2; Ex. 1005 ¶ 55). According to Petitioner, Duan further discloses an algorithm, wherein “[a] POSITA would understand that Duan’s algorithm would be implemented as a computer-executable program of instructions

(e.g., a computer program).” *Id.* at 30–31 (citing Ex. 1008, Fig. 12; Ex. 1005 ¶ 55).

With respect to the preambles of claims 11 and 26, Petitioner contends that “Duan describes ‘[a] base station device,’ and “therefore discloses an ‘apparatus.’” Pet. 31–32 (citing Ex. 1008 ¶ 17; Ex. 1005 ¶ 56).

Although Patent Owner does not present arguments in its Response addressing the merits of Petitioner’s contentions with respect to the preambles (*see generally* PO Resp.), the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). Based on the complete record presented, we determine that Petitioner has persuasively shown that Duan teaches a “method” as recited in claims 1 and 16, a “non-transitory program storage device” as recited in claims 6 and 21, and an “apparatus” as recited in claims 11 and 26.⁵

⁵ The issue of whether the preambles are limiting need not be resolved because, regardless of whether the preambles are limiting, Petitioner shows persuasively, and Patent Owner does not dispute, that Duan teaches a “method” as recited in the preambles of claims 1 and 16, a “non-transitory program storage device” as recited in the preambles of claims 6 and 21, and an “apparatus” as recited in the preambles of claims 11 and 26. *See Realtime Data*, 912 F.3d at 1375 (noting that we need only construe “only those terms that . . . are in controversy”).

- ii. *“estimat[ing] . . . an activity factor for a priority class based on a provided bit rate for the priority class and a guaranteed bit rate of the priority class, wherein the activity factor defines a percentage of time that a user is active” (claims 1, 6, 11, 16, 21, and 26)*

Petitioner contends that, when handling mobile devices of a priority class with a minimum guaranteed bit rate, “the uplink transmission rate measuring component 610 of Duan measures the average uplink transmission bit rate for each mobile device,” and, in determining whether a mobile device should be instructed to transmit at a reduced power and/or a reduced transmission rate, “Duan estimates whether the mobile device has ‘some leeway between the measured average uplink transmission bit rate and the minimum guaranteed rate.’” Pet. 36–37 (citing Ex. 1008 ¶¶ 115, 118). According to Petitioner, “[t]his estimation is based on a **‘ratio of the measured average uplink transmission bit rate to the minimum guaranteed rate,’**” wherein, “[b]ased on this ratio, Duan estimates whether the cellular device has sufficient allowance in the measured average uplink transmission bit rate for the minimum guaranteed rate.” *Id.* at 37 (citing Ex. 1008 ¶ 118).

Petitioner contends that “[w]hile Duan does not label this ratio as an ‘*activity factor*,’ the ratio is the same as an example activity factor disclosed in the ’000 patent” (Pet. 37 (citing Ex. 1001, 5:55–67)), wherein “[t]he ‘measured average uplink transmission bit rate’ of Duan corresponds to the claimed ‘*provided bit rate*’” (*id.* (citing Ex. 1005 ¶ 66; Ex. 1001, 3:55–62, 5:40–48)). Petitioner contends that “Duan measures the bit rate for mobile station apparatuses without defined guaranteed bit rates (i.e., non-priority

class) and those with defined guaranteed bit rates (i.e., high priority class)” (*id.* at 38 (citing Ex. 1008 ¶ 151)), wherein “Duan specifically identifies mobile devices with a minimum guaranteed bit rate as being ‘high priority.’” *Id.* According to Petitioner, “[b]ecause the mobile device in question has a minimum guaranteed bit rate, whereas other mobile devices do not have a guaranteed bit rate,” the mobile device in question “belongs to a network traffic group with a different quality of service than other groups and, thus, is a member of a priority class.” *Id.* (citing Ex. 1005 ¶ 67).

Furthermore, relying on Dr. Chatterjee’s testimony, Petitioner contends that “it was known to a POSITA that an activity factor defines a percentage of time a user is active.” Pet. 39 (citing Ex. 1005 ¶ 68). Petitioner contends that “Duan also discloses or at least suggests this limitation,” wherein “Duan’s activity factor is a **‘ratio of the measured average uplink transmission bit rate to the minimum guaranteed rate,’**” “Duan’s average uplink transmission bit rate corresponds to the bit rate actually being allotted to the mobile device based on the user[,],” and “the minimum guaranteed bit rate is a static value assigned to the priority class of the mobile device.” *Id.* (citing Ex. 1008 ¶ 118; Ex. 1005 ¶ 69). Petitioner cites to Dr. Chatterjee’s testimony that, “[b]ecause Duan’s ratio is based on a user’s measured average uplink transmission bit rate (e.g., a user’s actual activity), a POSITA would understand Duan’s ratio to define the percentage of time the user is active.” *Id.* at 40 (citing Ex. 1005 ¶ 70). According to Petitioner, “Duan’s ratio is similar to an example activity factor disclosed in the ’000 patent” (*id.* (citing Ex. 1001, 5:55–67)), wherein “[l]ike Duan’s ratio, the patent estimates the ratio of the provided bit rate over the

guaranteed bit rate to define the percentage of time that a user is active.” *Id.* (citing Ex. 1005 ¶ 70).

Although Patent Owner does not present arguments in its Response addressing the merits of Petitioner’s contentions with respect to these claim limitations (*see generally* PO Resp.), the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

Based on the complete record presented, we determine that Petitioner has persuasively shown that Duan teaches estimating “an activity factor for a priority class based on a provided bit rate for the priority class and a guaranteed bit rate of the priority class,” wherein “the activity factor defines a percentage of time that a user is active,” as recited.

iii. “using, by the processor, the estimated activity factor to estimate at least one network-related parameter” (claims 1, 6, 11, 16, 21, 26)

Petitioner contends that “[a] stated goal of Duan is to appropriately adjust transmission power and corresponding transmission bit rate of mobile devices in soft handover.” Pet. 40 (citing Ex. 1008 ¶¶ 152–153). According to Petitioner, “[b]efore Duan reduces the transmission power and transmission bit rate of the priority class mobile device, Duan estimates whether the mobile device has ‘some leeway between the measured average uplink transmission bit rate and the minimum guaranteed rate.’” *Id.* at 40–41 (citing Ex. 1008 ¶ 118).

Petitioner contends that “[t]o the extent Duan’s teachings do not disclose [estimating at least one network-related parameter using the activity factor ratio], it would have been obvious in view of Duan’s disclosure.” Pet. 42 (citing Ex. 1005 ¶ 76). Citing to Dr. Chatterjee’s testimony for

support, Petitioner contends that it would have been obvious to a POSITA “to directly estimate a desired transmission bit rate reduction percentage based on the desired bit rate of the base station apparatus and the bit rate actually provided by the base station apparatus.” *Id.* at 44 (citing Ex. 1005 ¶¶ 77–79).

Patent Owner contends that “Petitioner chops up a sentence from Duan to create a partial quotation that misrepresents the direct teaching of Duan.” PO Resp. 4 (citing Pet. 41). In particular, Patent Owner contends that Duan’s “some leeway . . .” passage “describes **a decision** and does not ***estimate at least one network-related parameter*** as required by the claim language.” *Id.* at 5. Thus, according to Patent Owner, “no parameter is ever defined, much less estimated by Duan in this passage.” *Id.*

Moreover, Patent Owner contends that “Duan expressly teaches away from defining any such parameter because according to the disclosure of Duan, a **decision** regarding ‘some leeway’ is made by comparing parameters.” PO Resp. 5. In particular, according to Patent Owner, “Duan expressly teaches ‘computing the ratio of the desired E-DCH-A3 [enhanced dedicated channel] reception power and the actual E-DCH-A3 reception power and having the mobile device convert the ratio to the corresponding transmission rate.’” *Id.* at 6 (citing Pet. 44; Ex. 1005 ¶¶ 126, 148).

Patent Owner further contends that Petitioner’s analysis “is conclusory and against the express teachings of Duan.” PO Resp. 6. According to Patent Owner, Dr. Chatterjee’s declaration “is nearly identical to the conclusory paragraph of the Petition” (*id.* (comparing Pet. 44 to Ex. 1005 ¶ 78)), which is “insufficient to support a prima facie showing of obviousness.” *Id.* at 7. Moreover, Patent Owner contends that “Petitioner’s

expert’s conclusory testimony is inconsistent with Duan,” and thus “must be disregarded.” *Id.*

We note Patent Owner advanced similar arguments prior to institution that we found unavailing. See Dec. Inst. 13–15. In particular, Patent Owner repeats its argument that Duan “describes **a decision** and does not ***estimate at least one network-related parameter***” since “no parameter is ever defined” in Duan. PO Resp. 5. Nevertheless, similar to our reasoning in the Decision to Institute, we agree with Petitioner that it would have been obvious in light of Duan to estimate a desired transmission bit rate reduction percentage, and thus, a “network-related parameter,” based on the ratio of the measured average uplink transmission bit rate to the minimum guaranteed rate (i.e., “the estimated activity factor”). Dec. Inst. 14; Pet. 41–44. In particular, Patent Owner does not address specifically Petitioner’s assertion and supporting evidence that “estimat[ing] at least one network-related parameter” would have been obvious in view of Duan’s disclosure.” See Pet. 42–45.

As Petitioner points out, the ’000 patent discloses “a quality of service factor in terms of bit rate” as an exemplary “network-related parameter.” Pet. 41; see also Ex. 1001, 8:3–18. We agree with Petitioner’s contention, which is supported by Dr. Chatterjee’s testimony that, in view of Duan, a POSITA would have found it obvious “to directly estimate a desired transmission bit rate reduction percentage based on the desired bit rate of the base station apparatus and the bit rate actually provided by the base station apparatus” (Pet. 44 (citing Ex. 1005 ¶¶ 77–78)), wherein “[t]he final transmission bit rate reduction percentage would then be provided to the

mobile device, instructing the mobile device to reduce its transmission rate accordingly.” *Id.*

As discussed *supra* § II(D)(2)(ii), we agree with Petitioner that while Duan does not label the ratio of the measured average uplink transmission bit rate to the minimum guaranteed rate as an “activity factor,” Duan teaches estimating a ratio that “is the same as an example activity factor disclosed in the ’000 patent.” *See* Pet. 37 (citing Ex. 1001, 5:55–67). Furthermore, we also agree with Petitioner that Duan teaches using this “estimated activity factor” to “directly estimate a desired transmission bit rate reduction percentage.” *Id.* at 44 (citing Ex. 1005 ¶ 78).

Although Patent Owner contends that Duan teaches away from estimating a network-related parameter because Duan discloses ““computing the ratio of the desired E-DCH-A3 reception power and the actual E-DCH-A3 reception power and having the mobile device convert the ratio to the corresponding transmission rate”” (PO Resp. 6), Dr. Chatterjee testified in his supporting declaration that “transmission power and transmission rate directly correspond.” Ex. 1005 ¶ 78. As Dr. Chatterjee testified, Duan’s estimated desired transmission rate reduction percentage could then be used “as the pre-determined threshold, against which Duan’s estimated activity factor ratio is compared” to determine whether the mobile device has sufficient allowance for a reduction in transmission rate while still meeting the guaranteed minimum rate. *Id.* ¶ 79. We determine Petitioner has demonstrated persuasively, with support from Dr. Chatterjee’s testimony, that Duan teaches using the “activity factor ratio . . . to estimate at least one network-related parameter.” *Id.*

Although Patent Owner also argues that Petitioner’s analysis “is conclusory and against the express teachings of Duan” (PO Resp. 6), Petitioner’s analysis is supported by Dr. Chatterjee’s testimony that the claimed estimating step would have been obvious to a POSITA (see Ex. 1005 ¶¶ 78–79), which is not countered by any record evidence. We credit Dr. Chatterjee’s un rebutted testimony because it is consistent with the teachings in Duan, as discussed above.

Based on the complete record presented, we determine Petitioner has persuasively shown that Duan teaches “using . . . the estimated activity factor to estimate at least one network-related parameter,” as recited in claims 1, 6, 11, 16, 21, and 26.

- iv. *obtaining “a measurement of a provided bit rate for the priority class” (claim 16, 21, 26)*

Petitioner contends that Duan discloses that “uplink transmission rate measuring [component] 610 . . . uses received data output from the error correction coding component 130 . . . to measure the average uplink transmission bit rate for each mobile station device.” Pet. 46 (citing Ex. 1008 ¶ 115). According to Petitioner, “Duan’s measurement of the average uplink transmission bit rate . . . corresponds to mobile devices of a priority class.” *Id.* at 46 (citing Ex. 1008 ¶ 151 (“explaining that mobile devices with a ‘minimum guaranteed rate’ correspond to ‘high-priority mobile station devices’”); Ex. 1005 ¶ 81).

Patent Owner argues that the claim language “expressly requires ‘wherein the measurement comprises a measurement of a provided bit rate ***for the priority class,***’” whereas Duan only discloses that “uplink transmission rate measuring component 610 uses received data output from

the error correction coding component 130 to **measure the average uplink transmission rate for each mobile station device**.” PO Resp. 9–10 (citing Ex. 1008 ¶ 115). That is, according to Patent Owner, Duan does not disclose “taking a measurement *for the priority class*,” but instead discloses “taking a measurement simply ‘for *each* mobile station device.’” *Id.* at 10.

Furthermore, Patent Owner argues that Duan discloses “the uplink scheduling component 620 only uses the average uplink transmission bit rate measurement results pertaining to mobile station devices engaged in communication belonging to a QoS class **without a defined minimum guaranteed rate**.” PO Resp. 10–11 (citing Ex. 1008 ¶ 116). Thus, according to Patent Owner, Duan discloses that “its measuring component 610 does not measure the provided bit rate of *the priority class*,” and discloses that “its component 620 *only* uses the measurements of mobile devices **not belonging to ‘the priority class’** as mapped by the Petition.” *Id.* at 11.

Patent Owner’s arguments are similar to those made prior to institution that we found unavailing. *See* Dec. Inst. 15–18. Based on the entire trial record, we are persuaded that Duan teaches measuring a provided bit rate for the priority class, i.e., the provided bit rate *for* the mobile devices of the priority class. *See* Pet. 46. That is, Duan’s uplink transmission rate measuring component 610 uses received data output from error correction coding component 130 to measure the average uplink transmission bit rate for each mobile station device, including mobile station devices in the priority class. *See* Ex. 1008 ¶ 116. Even Patent Owner acknowledges that Duan discloses taking a bit rate measurement “for each mobile station device.” PO Resp. 9–10 (emphasis omitted). We agree with Petitioner that

the mobile station devices belong to the priority class. Pet. 46. Thus, we agree with Petitioner that Duan teaches measuring a provided bit rate *for* the priority class. *Id.*

We also do not agree with Patent Owner’s argument that Duan *only* uses the bit rate measurement of mobile devices not belonging to the priority class. PO Resp. 11. Similar to our reasoning in the Decision on Institution, we agree with Petitioner that “Duan measures the bit rate for *both* ‘mobile station apparatuses without defined guaranteed bit rate’ *and* ‘those with defined guaranteed bit rates [but with some leeway relative to the minimum guaranteed rate],” wherein Duan specifies that “mobile devices with a ‘minimum guaranteed rate’ correspond to ‘high-priority mobile station devices.” Dec. Inst. 17; Pet. 38, 46 (citing Ex. 1008 ¶ 151).

We adopt as our own Dr. Chatterjee’s explanation that Duan’s mobile device that “has a minimum guaranteed bit rate,” as opposed to mobile devices that do not have a guaranteed bit rate, “belongs to a network traffic group with a different quality of service than other groups,” and thus, is “a member of a priority class.” See Ex. 1005 ¶ 67. In particular, we credit Dr. Chatterjee’s testimony because it is consistent with the teachings in Duan that mobile devices without a defined minimum guaranteed rate correspond to one quality of service class, as opposed to mobile device that have a minimum guaranteed rate. Ex. 1008 ¶ 115. Dr. Chatterjee’s un rebutted testimony is not countered by any record evidence. Thus, contrary to Patent Owner’s argument that Duan only uses the measurement of mobile devices not belonging to the priority class (PO Resp. 11), Petitioner relies on Duan’s bit rate measurement of a mobile device that “is a

member of a priority class” that is *different* from the priority class for those without a defined minimum guaranteed rate. *See* Pet. 38.

Based on the complete record presented, we determine that Petitioner has persuasively demonstrated that Duan teaches “obtaining a measurement of a provided bit rate for the priority class” as recited in claims 16, 21, and 26.

v. *Conclusion*

Based on the complete record presented, we determine that Petitioner has persuasively shown that Duan teaches the subject matter of claims 1, 6, 11, 16, 21, and 26.

b. Dependent claims 2–5, 7–10, 12–14, 17, 19, 22, 24, 27, and 29

Petitioner contends that Duan teaches the limitations recited in dependent claims 2–5, 7–10, 12–14, 17, 19, 22, 24, 27, and 29, citing Dr. Chatterjee’s declaration for support. Pet. 48–56 (citing Ex. 1008 ¶¶ 1–3, 8, 10–12, 17, 115, 117–119, 121–124, 126, 151, 153, Fig. 11; Ex. 1005 ¶¶ 87–101, 103). In particular, Petitioner contends that “HS-DSCH [(high-speed downlink shared channel)] was an industry standard telecommunication technology known in the prior art,” wherein “it would have been obvious to implement Duan’s activity factor using HS-DSCH as the provided bit,” as claimed in claims 2, 7, and 12. *Id.* at 48–50.

As for claims 3, 8, and 13, Petitioner contends that Duan’s “estimate of whether the mobile device has such sufficient allowance in bit rate is ‘a *quality of service factor in terms of bit rate*,’” and that Duan’s “estimate of the preferred transmit power reduction rate is ‘a *power used for existing connections of the priority class*.’” Pet. 50–51. As for claims 4, 9, and 14,

Petitioner contends that it would have been obvious to a POSITA to use Duan's teachings "to admit or deny a user." *Id.* at 52–53. As for claims 5 and 10, Petitioner contends that Duan discloses "implementing its techniques in a base station apparatus used specifically in W-CDMA [(Wideband-Code Division Multiple Access)] networks." *Id.* at 53–54. As for claims 17, 22, and 27, Petitioner contends Duan discloses "the use of its systems and related methods in Node B application parts, specifically, base station apparatuses." *Id.* at 54. As for claims 19, 24, and 29, Petitioner contends that "[a] POSITA would understand that the measured bit rate of the mobile devices of a priority class corresponds to the measured E-DCH reception power," and thus, "a POSITA would understand from Duan's disclosure that it measures '*an enhanced uplink dedicated channel (E-DCH) provided bit rate.*'" *Id.* at 55–56.

Although Patent Owner does not present arguments in its Response addressing the merits of Petitioner's contentions with respect to these claim limitations (*see generally* PO Resp. 15), the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

Based on the complete record presented, we determine that Petitioner has persuasively shown that Duan teaches the subject matter of dependent claims 2–5, 7–10, 12–14, 17, 19, 22, 24, 27, and 29.

c. Conclusion

Petitioner has proven, by a preponderance of the evidence, that claims 1–14, 16, 17, 19, 21, 22, 24, 26, 27, and 29 would have been obvious over Duan under 35 U.S.C. § 103(a).

E. Anticipation by Duan under 35 U.S.C. § 102 (Ground 2)

Petitioner contends that claims 1–14, 16, 17, 19, 21, 22, 24, 26, 27, and 29 of the ’000 patent also are anticipated by Duan, but relies on the same contentions discussed above for the obviousness ground (ground 1). Pet. 22–57. Patent Owner responds with the same arguments discussed above for the obviousness ground based on Duan. *See generally* PO Resp. 4–15. Because the Duan obviousness ground (ground 1) is dispositive as to all challenged claims (*see supra* § II(D)), we do not reach Petitioner’s challenge based on anticipation by Duan. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”); *Bos. Sci. Scimed, Inc. v. Cook Grp. Inc.*, 809 F. App’x 984, 990 (Fed. Cir. 2020) (non-precedential) (recognizing that “[t]he Board has the discretion to decline to decide additional instituted grounds once the petitioner has prevailed on all its challenged claims”).

F. Anticipation by Pederson under 35 U.S.C. § 102 (Ground 3) and Obviousness over Pederson under 35 U.S.C. § 103 (Ground 4)

Petitioner contends that claims 1–14, 16, 17, 19, 21, 22, 24, 26, 27, and 29 of the ’000 patent are anticipated by Pedersen or alternatively would have been obvious over Pedersen. Pet. 57–74. Because the Duan obviousness ground (ground 1, *see supra* § II(D)) is dispositive as to all challenged claims, we do not reach Petitioner’s challenge based on anticipation by or obviousness over Pedersen (grounds 3 and 4). *See SAS Inst.*, 138 S. Ct. at 1359; *Bos. Sci. Scimed*, 809 F. App’x at 990.

III. CONCLUSION⁶

For the foregoing reasons, we determine on the record at hand that Petitioner has demonstrated by a preponderance of the evidence that the challenged claims of the '000 patent are unpatentable.

In summary:

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–14, 16, 17, 19, 21, 22, 24, 26, 27, 29	103	Duan	1–14, 16, 17, 19, 21, 22, 24, 26, 27, 29	
1–14, 16, 17, 19, 21, 22, 24, 26, 27, 29	102	Duan ⁷		

⁶ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

⁷ We do not reach this ground because we have determined the challenged claims to be unpatentable under another ground. See *supra* § II(E).

1–14, 16, 17, 19, 21, 22, 24, 26, 27, 29	102	Pedersen ⁸		
1–14, 16, 17, 19, 21, 22, 24, 26, 27, 29	103	Pedersen ⁹		
Overall Outcome			1–14, 16, 17, 19, 21, 22, 24, 26, 27, 29	

⁸ We do not reach this ground because we have determined the challenged claims to be unpatentable under another ground. *See supra* § II(F).

⁹ We do not reach this ground because we have determined the challenged claims to be unpatentable under another ground. *See supra* § II(F).

IV. ORDER

For the reasons given, it is

ORDERED that, based on the preponderance of the evidence, claims 1–14, 16, 17, 19, 21, 22, 24, 26, 27, and 29 of the '000 patent have been shown to be unpatentable; and

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

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For PETITIONER:

Brent Ray
David Brun
KING & SPALDING LLP
bray@kslaw.com
sbrun@kslaw.com

For PATENT OWNER:

Brett Mangrum
MANGRUM LAW GROUP PLLC
brett@mangrumlawgroup.com

Sean Burdick
BURDICK PATENTS
sean@burdickpatents.com