



**PETITIONERS' ORAL ARGUMENT
DEMONSTRATIVES**

IPR2024-00310

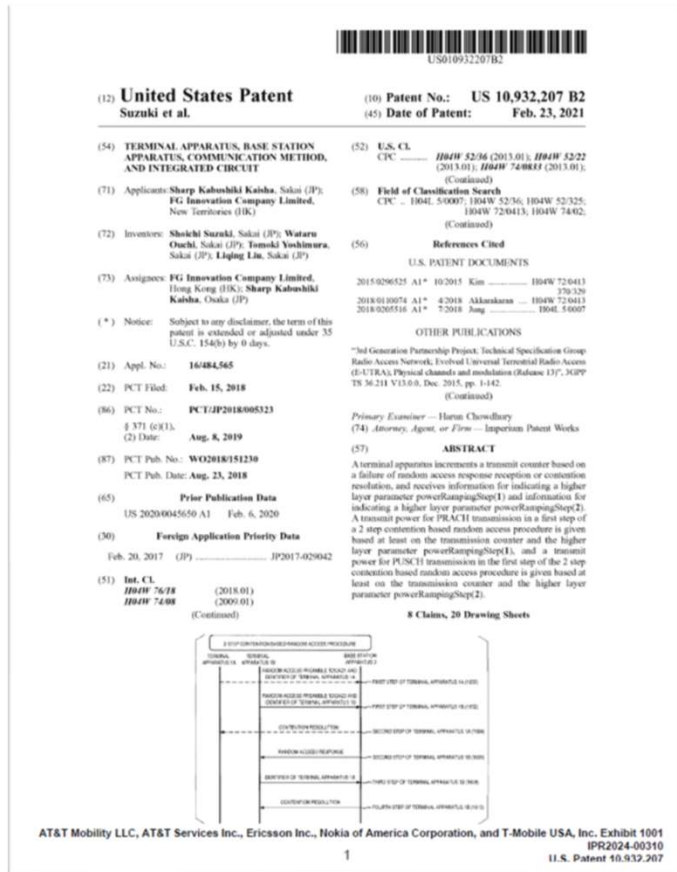
(U.S. PATENT NO. 10,932,207)

Before Administrative Patent Judges

- Christopher L. Ogden
- Russell E. Cass
- Mary C. Hoffman

McKool SMITH

Overview



1. Background

2. The Board correctly construed the terms “preambleInitialReceivedTargetPower[0/1]” and “powerRampingStep[0/1]”

3. Under the Board’s construction, obviousness is undisputed

4. Challenged Claims are obvious under Patent Owner’s proposed construction

5. The Board did not violate Patent Owner’s procedural rights by addressing RSRP

McKool Smith

Background

McKool SMITH

Contention Based Random Access Procedures

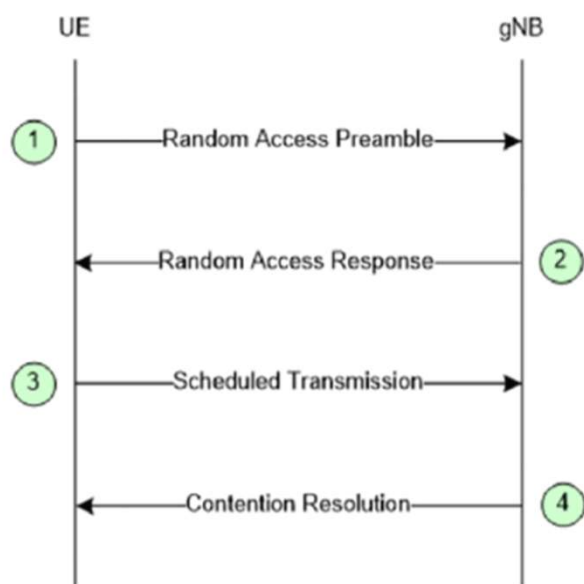


Figure 1: 4-step RACH procedure

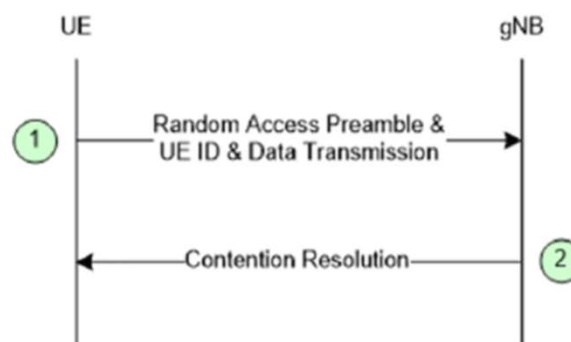
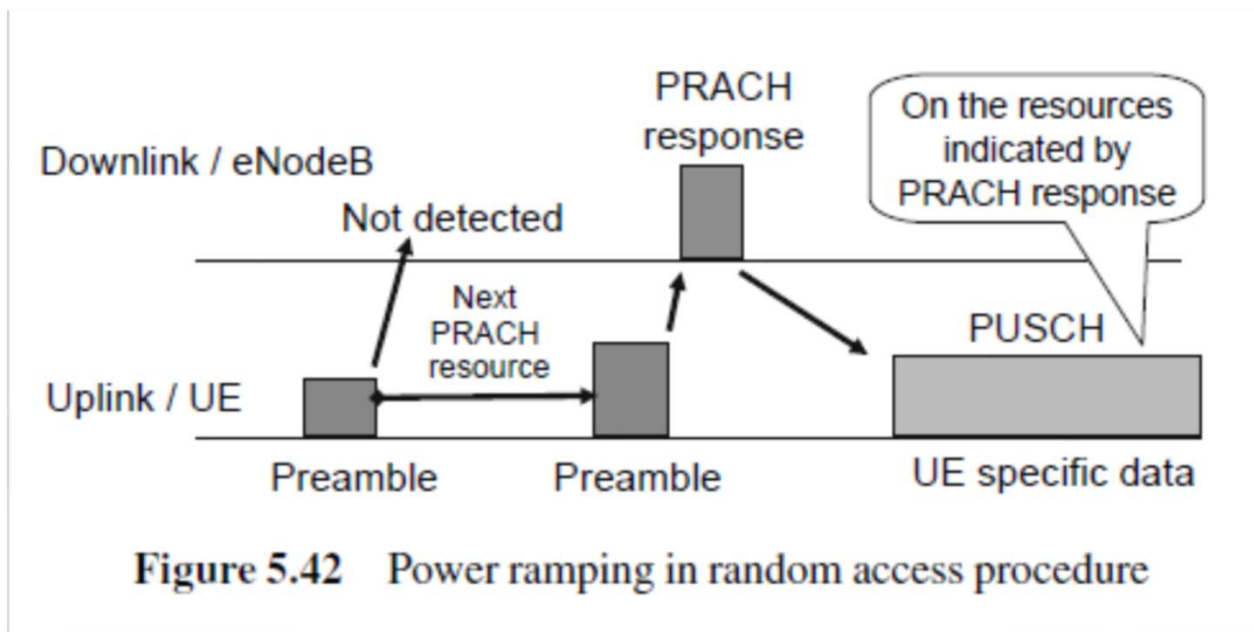


Figure 3: 2-step RACH procedure

Ex. 1003 (Mahon Decl.), ¶145 (citing Ex. 1009 at 2)

Power Ramping



Ex. 1003 (Mahon Decl.), ¶47 (citing Ex. 1008 at Fig. 5.42)

Power Ramping Has Been Used In Wireless Standards for Decades

3G Standard:

6.1 Physical random access procedure

The physical random access procedure described in this subclause is initiated upon request of a PHY-Data-REQ primitive from the MAC sublayer (cf. TS 25.321).

Before the physical random-access procedure can be initiated, Layer 1 shall receive the following information from the higher layers (RRC):

- The preamble scrambling code.
- The message length in time, either 10 or 20 ms.
- The AICH_Transmission_Timing parameter [0 or 1].
- The available signatures and RACH sub-channel groups for each Access Service Class (ASC), where a sub-channel group is defined as a group of some of the sub-channels defined in subclause 6.1.1.
- The power-ramping factor **Power_Ramp_Step** [integer > 0].
- The parameter **Preamble_Retrans_Max** [integer > 0].
- The initial preamble power **Preamble_Initial_Power**.

Ex. 1003 (Mahon Decl.), ¶48 (citing Ex. 1011 at 21)

4G Standard:

– RACH-ConfigCommon

The IE *RACH-ConfigCommon* is used to specify the generic random access parameters.

RACH-ConfigCommon information element

-- ASN1START

```
RACH-ConfigCommon ::= SEQUENCE {  
    preambleInfo SEQUENCE {
```

...

```
PowerRampingParameters ::= SEQUENCE {  
    powerRampingStep ENUMERATED {dB0, dB2, dB4, dB6},  
    preambleInitialReceivedTargetPower ENUMERATED {  
        dBm-120, dBm-118, dBm-116, dBm-114, dBm-112,  
        dBm-110, dBm-108, dBm-106, dBm-104, dBm-102,  
        dBm-100, dBm-98, dBm-96, dBm-94,  
        dBm-92, dBm-90}
```

Ex. 1003 (Mahon Decl.), ¶81 (citing Ex. 1010 at 378-79)

The Board correctly construed the terms
“preambleInitialReceivedTargetPower[0/1]” and
“powerRampingStep[0/1]”

Board's Preliminary Construction

[4pre]¹ A base station device comprising:

[4a] control circuitry configured to control a 2-step contention based random-access procedure and a 4-step contention based random-access procedure; and

[4b] reception circuitry configured to receive a physical random access channel with a random access preamble in a first step of the 2-step contention based random-access procedure or in a first step of the 4-step contention based random-access procedure; wherein

[4c] transmission power for the physical random access channel is given based at least on a
PREAMBLE_RECEIVED_TARGET_POWER;

[4d] for the 4-step contention based random access procedure, the PREAMBLE_RECEIVED_TARGET_POWER is given based at least on a preambleInitialReceivedTargetPower(0) and a powerRampingStep(0); and

[4e] for the 2-step contention based random access procedure, the PREAMBLE_RECEIVED_TARGET_POWER is given based at least on a preambleInitialReceivedTargetPower(1) and a powerRampingStep(1).

Board's Preliminary Construction:

“[W]e preliminarily construe the disputed terms as being four separate elements . . . where preambleInitialReceivedTargetPower(0) and powerRampingStep(0) are functions of input(0), and where

preambleInitialReceivedTargetPower(1) and powerRampingStep(1) are functions of input(1).

However, we preliminarily decline to adopt Patent Owner's full implicit construction of the disputed terms, which also requires that input(0) 'corresponds to the 4-step procedure' and input(1) 'corresponds to the 2-step procedure.'”

McKool Smith

Proposed Constructions

Board's Preliminary Construction	Petitioners	Patent Owner
“[W]e preliminarily construe the disputed terms as being four separate elements (preambleInitialReceivedTargetPower(0), preambleInitialReceivedTargetPower(1), powerRampingStep(0), and powerRampingStep(1)), where preambleInitialReceivedTargetPower(0) and powerRampingStep(0) are functions of input(0), and where preambleInitialReceivedTargetPower(1) and powerRampingStep(1) are functions of input(1)”	Same as the Board	

PO Refuses to Disclose its Proposed Construction

RE: IPR2024-00310 | Exchange of Oral Hearing Demonstratives



Matthew T. Cameron

To  Joshua Wyde;  Nicholas Mathews;  Casey L. Shomaker

Cc  IPR2024-00310;  abullwinkel@hpcllp.com;  Michael Heim ;  Chris Limbacher;  Michael McBride

Retention Policy 14 Year Delete (14 years)

  Reply  Reply All  Forward  

Fri 5/30/2025 11:25 AM

Counsel,

In preparation for the oral hearing, would you please send us a chart that includes (1) the claim language that is the subject of Patent Owner’s proposed construction, and (2) Patent Owner’s proposed construction? We believe this will crystalize the claim construction dispute and reduce the likelihood of the parties talking past is what we had in mind. For example:

Claim Term(s)

After we receive your chart, we will insert a page regarding the specific language that

Sincerely,

Matthew Cameron

RE: IPR2024-00310 | Exchange of Oral Hearing Demonstratives



Joshua Wyde <JWyde@aatriallaw.com>

To  Matthew T. Cameron;  Nicholas Mathews;  Casey L. Shomaker

Cc  IPR2024-00310;  abullwinkel@hpcllp.com;  Michael Heim ;  Chris Limbacher;  Michael McBride

Retention Policy 14 Year Delete (14 years)

  Reply  Reply All  Forward  

Mon 6/2/2025 8:19 AM

Patent Owner has already put forth its claim construction and the basis therefore in a straightforward and detailed manner. Therefore, it declines the invitation to provide a peripheral exchange outside the merits papers as it is at least unnecessary.

JoshuaWyde

ALAYI & ANAIPAKOS PLLC, OF COUNSEL

T 713.751.2365 | F 713.751.2341 | W aatriallaw.com

PO's Shifting Positions

Patent Owner does indeed dispute that each and every element of Claims 4–6 and 8 as *properly construed* is disclosed in the prior art. All the claims require different power settings based upon the number of steps, and Lee1/Lee2 neither alone nor together teach or suggest this limitation.

Paper 13 (PO Sur-Reply) at 1

ReceivedTargetPower(1) and a powerRampingStep(1). And, as Patent Owner explains herein, “(0)” and “(1)” denote separate elements where 0 is set “for” the 4-step and 1 is set “for” the 2-step contention based procedures. Yet, Petitioner does

Paper 11 (POR) at 1

set in accordance for a handover event.”). However, none of this explains why a POSITA would be motivated to modify Lee1 to use different power settings based upon whether the UE is doing a 2-step or 4-step contention procedure.

Paper 11 (POR) at 41

To the extent that Petitioners are arguing that the separately recited elements *may evaluate* to the same value, this does not change that the claim limitations require the two separate functions that have a definition for at least the two inputs, 0 and 1, corresponding to the 4- and 2-step process, respectively. And, again, there is

Paper 8 (POPR) at 29

miss the pertinent language completely. Patent Owner contends that it is the “for the 4-step contention based random access procedure” and “for the 2-step contention based random access procedure” that indicates the following functions correspond to the given steps, not the “0” and “1” on their own.

Paper 13 (PO Sur Reply) at 6

McKool Smith

Board's Construction is Correct

1. Consistent with plain language of claims
2. Supported by intrinsic record

Consistent with Plain Language of Claims

U.S. Patent 10,932,207 B2

(12) **United States Patent**
Suzuki et al.

(10) **Patent No.:** US 10,932,207 B2
(45) **Date of Patent:** Feb. 23, 2021

(54) **TERMINAL APPARATUS, BASE STATION APPARATUS, COMMUNICATION METHOD, AND INTEGRATED CIRCUIT**

(71) **Applicants:** Sharp Kabushiki Kaisha, Sakai (JP); FG Innovation Company Limited, New Territories (HK)

(72) **Inventors:** Shosichi Suzuki, Sakai (JP); Wataru Ouchi, Sakai (JP); Tomoki Yoshimura, Sakai (JP); Hajime Ito, Sakai (JP)

(73) **Assignees:** FG Innovation Company Limited, Hong Kong (HK); Sharp Kabushiki Kaisha, Osaka (JP)

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) **Appl. No.:** 16/484,565

(22) **PCT Filed:** Feb. 15, 2018

(86) **PCT No.:** PCT/JP2018/005323
§ 371 (c)(1),
(2) **Date:** Aug. 8, 2019

(87) **PCT Pub. No.:** WO2018/151230
PCT Pub. Date: Aug. 23, 2018

(65) **Prior Publication Data**
US 2020/0045650 A1 Feb. 6, 2020

(30) **Foreign Application Priority Data**
Feb. 20, 2017 (JP) JP2017-029042

(51) **Int. Cl.**
H04W 76/18 (2018.01)
H04W 74/08 (2009.01)
(Continued)

(52) **U.S. CL.**
H04W 52/36 (2013.01); H04W 52/22 (2013.01); H04W 74/0833 (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC: H04L 5/0007; H04W 52/36; H04W 52/325; H04W 72/0413; H04W 74/02;
(Continued)

(56) **References Cited**
U.S. PATENT DOCUMENTS
2015/0296525 A1* 10/2015 Kim H04W 72/0413 270,326
2018/0110074 A1* 4/2018 Akankana H04W 72/0413
2018/026516 A1* 7/2018 Jung H04W 74/02
(Continued)

OTHER PUBLICATIONS
"3rd Generation Partnership Project, Technical Specification Group Radio Access Network, Evolved Universal Terrestrial Radio Access (E-UTRA), Physical channels and modulation (Release 13)", 3GPP TS 36.211 V13.0.0, Dec. 2015, pp. 1-142.
(Continued)

Primary Examiner: Harna Chowdhury
(74) **Attorney, Agent, or Firm:** Invention Patent Works

(57) **ABSTRACT**
A terminal apparatus increments a transmit counter based on a failure of random access response reception or contention resolution, and receives information for indicating a higher layer parameter powerRampingStep(1) and information for indicating a higher layer parameter powerRampingStep(2). A transmit power for PRACH transmission is a first step of a 2 step contention based random access procedure is given based at least on the transmission counter and the higher layer parameter powerRampingStep(1), and a transmit power for PUSCH transmission in the first step of the 2 step contention based random access procedure is given based at least on the transmission counter and the higher layer parameter powerRampingStep(2).

8 Claims, 20 Drawing Sheets

1

AT&T Mobility LLC, AT&T Services Inc., Ericsson Inc., Nokia of America Corporation, and T-Mobile USA, Inc. Exhibit 1001
IPR2024-00310
U.S. Patent 10,932,207

for the 4-step contention based random access procedure, the PREAMBLE_RECEIVED_TARGET_POWER is given based at least on a preambleInitialReceivedTargetPower(0) and a powerRampingStep(0); and for the 2-step contention based random access procedure, the PREAMBLE_RECEIVED_TARGET_POWER is given based at least on a preambleInitialReceivedTargetPower(1) and a powerRampingStep(1).

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Ex. 1001 at Claim 4
PD-13

Consistent with Plain Language of the Claims

Paper 11
Filed: December 5, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRI

AT&T MOBILITY LLC, AT&T S
NOKIA OF AMERICA CORPORA
PETITI

DAINGEAN TECH
PATENT

CASE IPR
PATENT

PATENT OWNI
37 C.F.R

³ At a minimum, like the use of ordinal numbering, the claims' use of different inputs to the functions `preambleInitialReceivedTargetPower()` and `powerRampingStep()` in limitations 4c and 4d indicate that these are independent values specified for the 4-step and 2-step procedures, and Petitioners cannot identify the same item as satisfying both claim elements. *See Gillette Co. v. Energizer Holdings, Inc.*, 405 F.3d 1367, 1373 (Fed. Cir. 2005) ("The terms 'first, second, and third' are terms to distinguish different elements of the claim.").

Paper 11 (POR) at 27

McKool Smith

Supported by the Specification

minimum value among a plurality of input values. PREAMBLE_RECEIVED_TARGET_POWER is given by Equation 6.

$$\text{PREAMBLE_RECEIVED_TARGET_POWER} = \text{pre-ambleInitialReceivedTargetPower}(m) + \text{DELTA_PREAMBLE}(F) + (\text{PREAMBLE_TRANSMISSION_COUNTER} - 1) * \text{powerRampingStep}(m);$$

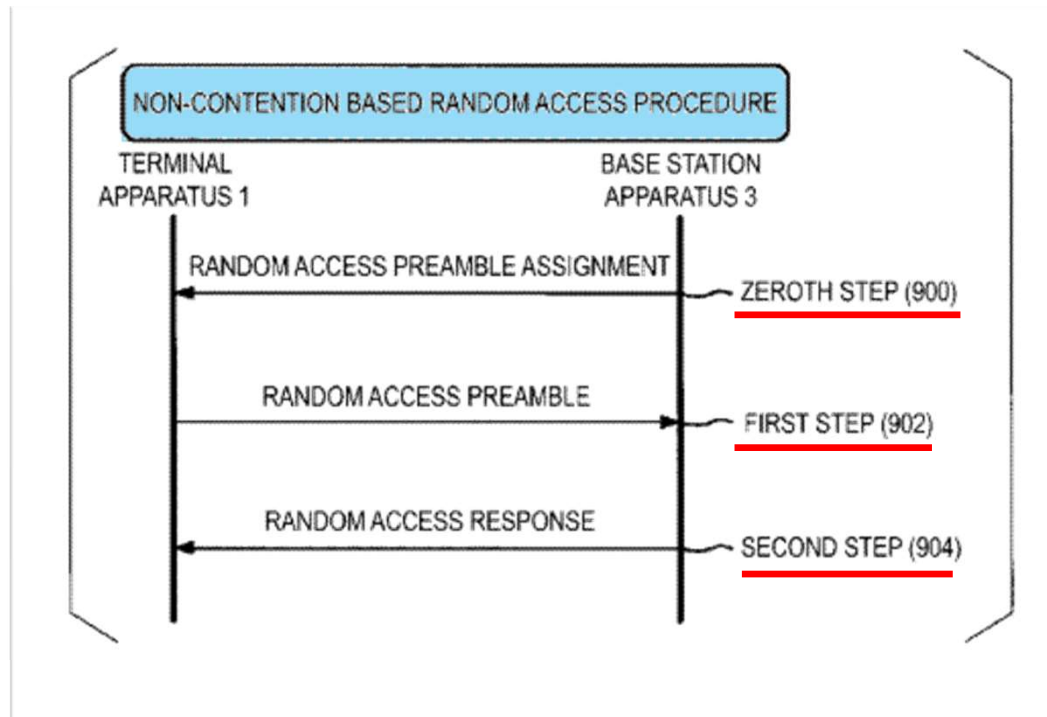
Equation 6

where

$\text{pre-ambleInitialReceivedTargetPower}(m)$ is configured by higher layers (RRC) for $m=0$ and $m=1$. For 4 step contention based random access procedure and non-contention based random access procedure then $m=0$, and for 2 step contention based random access procedure then $m=1$.

$\text{powerRampingStep}(m)$ is configured by higher layers (RRC) for $m=0$ and $m=1$.

$\text{DELTA_PREAMBLE}(F)$ is configured by higher layers (RRC). Each $\text{DELTA_PREAMBLE}(F)$ value corresponds to a PRACH format (F).

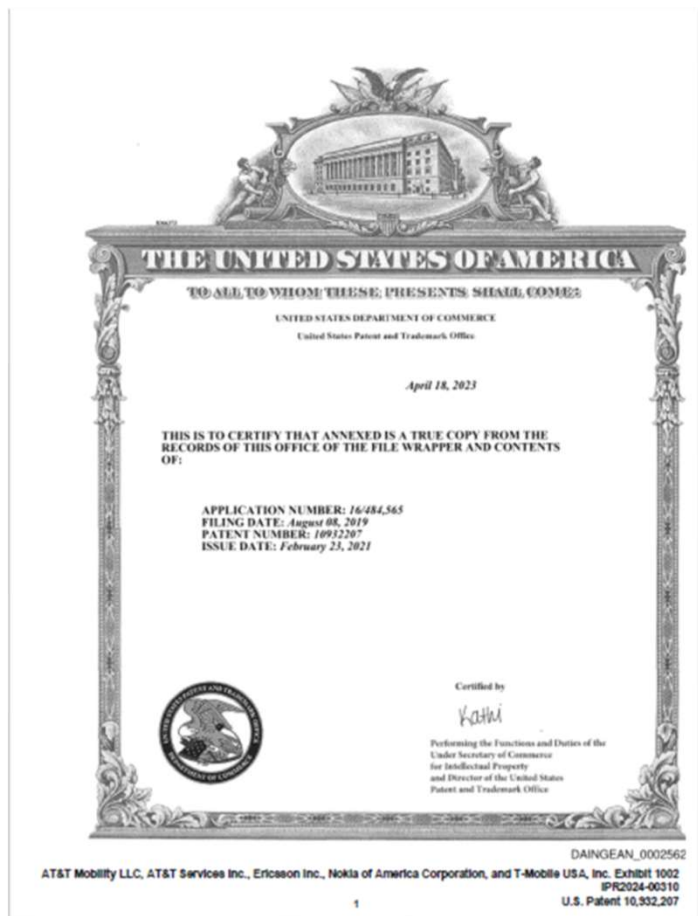


Ex. 1001 ('207 Patent) at Fig. 9, 14:59-53

Ex. 1001 ('207 Patent) at 29:31-50

McKool Smith

Supported by the Prosecution History



Kim discloses **different** power ramping step (powerRampingStep(0) and powerRampingStep(1)) for the four-step contention based RACH procedure and the two-step contention free RACH procedure. Kim does not disclose PREAMBLE_RECEIVED_TARGET_POWER as well as power ramping step (powerRampingStep(1)) for the two-step contention based random access procedure.

Ex. 1002 at 4109

McKool Smith

Paper 9 (Inst. Dec.) at 12-13
PD-16

The Board's Preliminary Construction Is Correct

Trials@uspto.gov
571-272-7822

Paper 9
Entered: September 12, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AT&T MOBILITY LLC, AT&T SERVICES INC., ERICSSON INC.,
NOKIA OF AMERICA CORPORATION, and T-MOBILE USA, INC.,
Petitioner,
v.

DAINGEAN TECHNOLOGIES LTD.,
Patent Owner.

IPR2024-00310
Patent 10,932,207 B2

Before CHRISTOPHER L. OGDEN, JOHN R. KENNY, and
MARY C. HOFFMAN, *Administrative Patent Judges*.

HOFFMAN, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

However, we preliminarily decline to adopt Patent Owner's full implicit construction of the disputed terms, which also requires that input(0) "corresponds to the 4-step procedure" and input(1) "corresponds to the 2-step procedure." *See, e.g.*, Prelim. Resp. 29 ("[T]he claim limitations require the two separate functions that have a definition for at least the two inputs, 0 and 1, corresponding to the 4- and 2-step process, respectively."). In our view, construing, for example, "preambleInitialReceivedTargetPower(0)" as having an input corresponding to the 4-step procedure would improperly import limitations from the Specification into the claims. *See SuperGuide Corp. v. DirecTV Enters., Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004) ("Though understanding the claim language may be aided by the explanations contained in the written description, it is important not to import into a claim limitations that are not a part of the claim.").

McKool Smith

Paper 9 (Inst. Dec.) at 13
PD-17

PO's Construction is Incorrect

1. Seeks to rewrite the claims
2. Improperly imports limitations
3. Inconsistent with intrinsic record

PO Seeks to Rewrite the Challenged Claims

Disputed Claim Language:

[4d] for the 4-step contention based random access procedure, the PREAMBLE_RECEIVED_TARGET_POWER is given based at least on a preambleInitialReceivedTargetPower(0) and a powerRampingStep(0); and

≠

[4e] for the 2-step contention based random access procedure, the PREAMBLE_RECEIVED_TARGET_POWER is given based at least on a preambleInitialReceivedTargetPower(1) and a powerRampingStep(1).

≠

PO's Apparent Interpretation:

[4d] for the 4-step contention based random access procedure, the PREAMBLE_RECEIVED_TARGET_POWER is given based at least on a preambleInitial ReceivedTargetPower(0) and a powerRampingStep(0) that correspond to the 4-step contention based random access procedure; and

[4e] for the 2-step contention based random access procedure, the PREAMBLE_RECEIVED_TARGET_POWER is given based at least on a preambleInitialReceivedTargetPower(1) and a powerRampingStep(1) that correspond to the 2-step contention based random access procedure.

PO Improperly Imports Limitations

Paper 11
Filed: December 5, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AT&T MOBILITY LLC, AT&T SERVICES INC., ERICSSON INC.,
NOKIA OF AMERICA CORPORATION, AND T-MOBILE USA, INC.,
PETITIONERS,

v.

DAINGEAN TECHNOLOGIES LTD.,
PATENT OWNER.

CASE IPR2024-00310
PATENT 10,932,207

PATENT OWNER'S RESPONSE
37 C.F.R. § 42.120

While Patent Owner acknowledges that the sentence construction is awkward—as is often the case with claim limitations, *see Fumai Elec. Co., Ltd. v. Daewoo Electronics Corp.*, 616 F. 3d 1357, 1372 (Fed. Cir. 2010) (“The protocols of claim writing can lead to awkward phrasing, for the claim is restricted to a single sentence.”)—it is Patent Owner’s position that preambleInitialReceivedTargetPower(0)/powerRampingStep(0) corresponds to the 4-step procedure and preamble-InitialReceivedTargetPower(1)/powerRampingStep(1) corresponds to the 2-step procedure. POPR 12. The Board preliminarily disagreed saying that requiring correspondence improperly imports limitations from the specification into the claims because the claims only say that the functions are “for the 4-step” and “for the 2-step,” Inst. Dec. 13–14 (emphasis added), and “claim 4 does not actually require initial power and power ramping correspond to or be dependent on procedure type,” *id.* 26. Patent Owner respectfully disagrees for the following reasons.

The specification uses the same awkward “for” language as used in the claims, and a POSITA understood that this indicates the *m* value is set based upon the number of steps. Ex. 2004 ¶¶3–5; *see also Phillips v. AWH Corp.*, 415 F.3d 1303,

McKool Smith

Paper 11 (POR) at 30
PD-20

First Portion of the Specification Highlighted by PO

 US10932207B2			
(12) United States Patent Suzuki et al.		(10) Patent No.: US 10,932,207 B2 (45) Date of Patent: Feb. 23, 2021	
(54) TERMINAL APPARATUS, BASE STATION APPARATUS, COMMUNICATION METHOD, AND INTEGRATED CIRCUIT		(52) U.S. CL. CPC ——— H04W 52/36 (2013.01); H04W 52/22 (2013.01); H04W 74/0833 (2013.01); (<i>C. continued</i>)	
(71) Applicant: Sharp Kabushiki Kaisha, Osaka (JP); FG Innovation Company Limited, New Territories (HK)		(58) Field of Classification Search CPC — H04L 5/0007 ; H04W 52/36 ; H04W 52/325 ; H04W 72/0413 ; H04W 74/0833 ; H04W 74/082 ; (<i>C. continued</i>)	
(72) Inventor: Shoichi Suzuki, Osaka (JP); Wataru Ouchi, Osaka (JP); Tamaki Yoshimura, Osaka (JP); Hajime Ito, Osaka (JP)		(56) References Cited U.S. PATENT DOCUMENTS 2015/0206525 A1* 10/2015 Kim H04W 72/0413 270-328 2018/0130074 A1* 4/2018 Akkanakura H04W 72/0413 2018/0206516 A1* 7/2018 Jung H04W 5/0007	
(73) Assignee: FG Innovation Company Limited, Hong Kong (HK); Sharp Kabushiki Kaisha, Osaka (JP)		OTHER PUBLICATIONS "3rd Generation Partnership Project: Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and modulation (Release 13)", 3GPP TS 36.211 V13.0.0, Dec. 2015, pp. 11-42 (<i>C. continued</i>)	
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.		Primary Examiner — Harun Chowdhury (74) Attorney, Agent, or Firm — Imperium Patent Works	
(21) Appl. No.: 16/484,565		(57) ABSTRACT A terminal apparatus increments a transmit counter based on a failure of random access response reception or contention resolution, and receives information for indicating a higher layer parameter powerRampingStep(1) and information for indicating a higher layer parameter powerRampingStep(2). A transmit power for PRACH transmission in the first step of a 2 step contention based random access procedure is given based at least on the transmit counter and the higher layer parameter powerRampingStep(1), and a transmit power for PUSCH transmission in the first step of the 2 step contention based random access procedure is given based at least on the transmit counter and the higher layer parameter powerRampingStep(2).	
(22) PCT Filed: Feb. 15, 2018			
(86) PCT No.: PCT/JP2018/005323 Int. Cl. (86): A61 371 (G11), (2) Date: Aug. 8, 2019			
(87) PCT Pub. No.: WO2018/151230 PCT Pub. Date: Aug. 23, 2018			
(65) Priority Publication Data US 2020/0045650 A1 Feb. 6, 2020			
(30) Foreign Application Priority Data Feb. 20, 2017 (JP) JP2017-029042			
(51) Int. Cl. H04W 74/18 (2018.01) H04W 74/08 (2009.01) (<i>C. continued</i>)		8 Claims, 20 Drawing Sheets	

AT&T Mobility LLC, AT&T Services Inc., Ericsson Inc., Nokia of America Corporation, and T-Mobile USA, Inc. Exhibit 1001
IPR2024-00310
U.S. Patent 10,932,207

preambleInitialReceivedTargetPower(m) is configured by the higher layer (RRC), powerRampingStep(m) is a step size of transmit power ramp up, and powerRampingStep(m) is configured by the higher layer (RRC). m is 0 for the 4 step contention based random access response procedure and the non contention based random access procedure. m is 1 for the 2 step contention based random access procedure. In other words, preambleInitialReceivedTargetPower(0) and preambleInitialReceivedTargetPower(1) may be configured by the higher layer. In other words, powerRampingStep(0) and powerRampingStep(1) are configured by the higher layer. The base station apparatus 3 may transmit higher layer (RRC) information (parameter) for indicating preambleInitialReceivedTargetPower(0) and higher layer (RRC) information (parameter) for indicating preambleInitialReceivedTargetPower(1). The base station apparatus 3 may transmit

Second Portion of the Specification Highlighted by PO

PREAMBLE_RECEIVED_TARGET_POWER= preambleInitialReceivedTargetPower(m)+DELTA_PREAMBLE(F)+(PREAMBLE_TRANSMISSION_COUNTER-1)*powerRampingStep(m);

Equation 6

where

preambleInitialReceivedTargetPower(m) is configured by higher layers (RRC) for m=0 and m=1. For 4 step contention based random access procedure and non-contention based random access procedure then m=0, and for 2 step contention based random access procedure then m=1.

powerRampingStep(m) is configured by higher layers (RRC) for m=0 and m=1.

DELTA_PREAMBLE(F) is configured by higher layers (RRC). Each DELTA_PREAMBLE(F) value corresponds to a PRACH format (F).

DELTA_PREAMBLE (F) may be configured by the higher layer. Each DELTA_PREAMBLE (F) may correspond to a PRACH format (F). The PRACH format may be a random access preamble format. The PRACH format may include a CP length, the length of a random access preamble sequence, and the number of repetitions of the random access preamble sequence. The base station apparatus 3 may transmit higher layer (RRC) information (parameter) for indicating DELTA_PREAMBLE (F).

Ex. 1001 ('207 Patent) at 30:13-21

Ex. 1001 ('207 Patent) at 29:31-50

McKool SMITH

Paper 11 (POR) at 31-32
PD-22

PO Seeks to Import Disclosure Regarding Unclaimed Functionality Into the Claim Language

Paper 11
Filed: December 5, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AT&T MOBILITY LLC, AT&T SERVICES INC., ERICSSON INC.,
NOKIA OF AMERICA CORPORATION, AND T-MOBILE USA, INC.,
PETITIONERS,

v.

DAINGEAN TECHNOLOGIES LTD.,
PATENT OWNER.

CASE IPR2024-00310
PATENT 10,932,207

PATENT OWNER'S RESPONSE
37 C.F.R. § 42.120

for indicating powerRampingStep (1).” *id.* 29:66–30:2 (emphasis added). That is, in each instance, the base station sends a “parameter” that *defines* the DELTA_PREAMBLE represented by “F” and *defines* the initial/step power to use represented by “m.” See Ex. 2006 (noting “parameters” characterize or define a system). A POSITA would recognize that the same treatment of “(m)” and “(F),” where “(F)” “corresponds” to the format, also supports that the “(m)” parameter of the claim “corresponds” to the higher layer configuration of the power, with m being dependent upon whether the system is performing a 4-step or 2-step procedure.⁵

McKool Smith

Paper 11 (POR) at 32
PD-23

The Prosecution History Does Not Support PO's Proposal

Jung does not disclose the transmission power (PREAMBLE_RECEIVED_TARGET_POWER) for the a four step contention based RACH procedure associated with preambleInitialReceivedTargetPower and a powerRampingStep(0) and the transmission power (PREAMBLE_RECEIVED_TARGET_POWER) for the two-step contention based RACH procedure associated with preambleInitialReceivedTargetPower and a powerRampingStep(1).

Ex. 1002 at 1478

Kim et al (US 20150296525 A1) discloses to determine the PREAMBLE_RECEIVED_TARGET_POWER (transmission power as disclosed in Par 0057) for the four-step contention based RACH procedure (Fig. 4) based on the preambleInitialReceivedTargetPower and a powerRampingStep (Fig. 4, Par 0056-0060). Kim further discloses to determine the PREAMBLE_RECEIVED_TARGET_POWER (transmission power as disclosed in Par 0057) for a two-step contention free RACH procedure (Fig. 5) based on the preambleInitialReceivedTargetPower and a powerRampingStep (Fig. 5, Par 0057, Par 0065-0068). The power ramping step for the four-step contention based RACH procedure is different than the power ramping step for the two-step contention free RACH procedure (Par 0075-0076).

Ex. 1002 at 1478

PO Does Not Explain How the Language Used by the Examiner “Corresponds” to Its Proposed Construction

Paper 13
Filed: April 10, 2025

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AT&T MOBILITY LLC, AT&T SERVICES INC., ERICSSON INC.,
NOKIA OF AMERICA CORPORATION, AND T-MOBILE USA, INC.,
PETITIONERS,

v.

DAINGEAN TECHNOLOGIES LTD.,
PATENT OWNER.

CASE IPR2024-00310
PATENT 10,932,207

PATENT OWNER'S SUR-REPLY
37 C.F.R. § 42.23

Ex. 1002 at 4039 (emphasis added). So, while not all power parameters were functions at this time, the “step” was, and the Examiner *did understand* that the function parameters were “based upon”/“associated with” the number of steps. *See also id.* (noting “Kim discloses different power ramping step (powerRampingStep(0) and powerRampingStep(1)) *for the* four-step contention based RACH procedure and the two-step contention free RACH procedure”)) (different emphasis); *accord* Reply 8 (“[T]he Examiner used the phrase ‘based on,’ which tracks the language of the issued claims.”).

McKool Smith

Paper 13 (PO Sur-Reply) at 10
PD-25

The Examiner's Remarks Do Not Affect the Scope of the Challenged Claims



“But the examiner said nothing about the scope of ‘reacting,’ and the examiner’s use of the word ‘starting compound’ in isolation does not suggest that he defined reacting as referring only to starting materials. In any event, there are no statements by the patentee during prosecution that limited the scope of ‘reacting,’ and ‘the examiner’s unilateral remarks alone do not affect the scope of the claim.”

H. Lundbeck A/S v. Lupin Ltd., 87 F.4th 1361, 1374 (Fed. Cir. 2023)
(quoting *Salazar v. Procter & Gamble Co.*, 414 F.3d 1342, 1347 (Fed. Cir. 2005).

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The Board Should Maintain Its Preliminary Construction

- [4pre]¹ A base station device comprising:
- [4a] control circuitry configured to control a 2-step contention based random-access procedure and a 4-step contention based random-access procedure; and
 - [4b] reception circuitry configured to receive a physical random access channel with a random access preamble in a first step of the 2-step contention based random-access procedure or in a first step of the 4-step contention based random-access procedure; wherein
 - [4c] transmission power for the physical random access channel is given based at least on a
PREAMBLE_RECEIVED_TARGET_POWER;
 - [4d] for the 4-step contention based random access procedure, the
PREAMBLE_RECEIVED_TARGET_POWER is given based at least on a preambleInitialReceivedTargetPower(0) and a
powerRampingStep(0); and
 - [4e] for the 2-step contention based random access procedure, the
PREAMBLE_RECEIVED_TARGET_POWER is given based at least on a preambleInitialReceivedTargetPower(1) and a
powerRampingStep(1).

Board's Preliminary Construction:

“[W]e preliminarily construe the disputed terms as being four separate elements . . . where preambleInitialReceivedTargetPower(0) and powerRampingStep(0) are functions of input(0), and where

]preambleInitialReceivedTargetPower(1) and powerRampingStep(1) are functions of input(1).

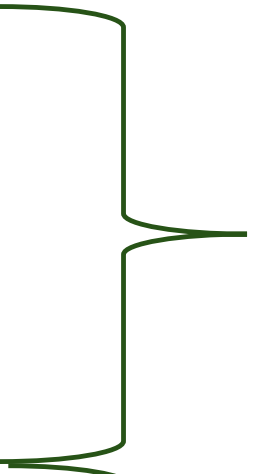
However, we preliminarily decline to adopt Patent Owner's full implicit construction of the disputed terms, which also requires that input(0) 'corresponds to the 4-step procedure' and input(1) 'corresponds to the 2-step procedure.'”

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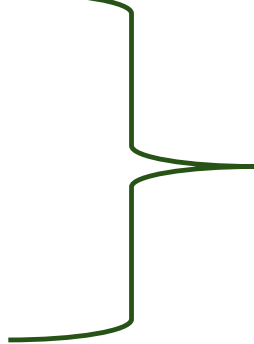
Under the Board's Preliminary Construction, Obviousness
Under Lee1/Lee2 is **Undisputed**

It is Undisputed that the Challenged Claims Are Obvious Under the Board's Preliminary Construction

- [4pre]¹ A base station device comprising:
- [4a] control circuitry configured to control a 2-step contention based random-access procedure and a 4-step contention based random-access procedure; and
 - [4b] reception circuitry configured to receive a physical random access channel with a random access preamble in a first step of the 2-step contention based random-access procedure or in a first step of the 4-step contention based random-access procedure; wherein
 - [4c] transmission power for the physical random access channel is given based at least on a `PREAMBLE_RECEIVED_TARGET_POWER`;
 - [4d] for the 4-step contention based random access procedure, the `PREAMBLE_RECEIVED_TARGET_POWER` is given based at least on a `preambleInitialReceivedTargetPower(0)` and a `powerRampingStep(0)`; and
 - [4e] for the 2-step contention based random access procedure, the `PREAMBLE_RECEIVED_TARGET_POWER` is given based at least on a `preambleInitialReceivedTargetPower(1)` and a `powerRampingStep(1)`.



No dispute that [4pre], [4a], [4b], and [4c] are obvious in view of Lee1 + Lee2 under any proposed construction



No dispute that [4d] and [4e] are obvious in view of Lee1 + Lee2 under the Board's preliminary construction

PO's Sur-Reply Does Not Address the Board's Preliminary Construction

Paper 1
Filed: April 10, 2021

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AT&T MOBILITY LLC, AT&T SERVICES INC., ERICSSON INC.,
NOKIA OF AMERICA CORPORATION, AND T-MOBILE USA, INC.,
PETITIONERS,

v.

DAINGEAN TECHNOLOGIES LTD.,
PATENT OWNER.

CASE IPR2024-00310
PATENT 10,932,207

PATENT OWNER'S SUR-REPLY
37 C.F.R. § 42.23

Patent Owner does indeed dispute that each and every element of Claims 4–6 and 8 as *properly construed* is disclosed in the prior art. All the claims require different power settings based upon the number of steps, and Lee1/Lee2 neither alone nor together teach or suggest this limitation.

Paper 13 (PO's Sur-Reply) at 1

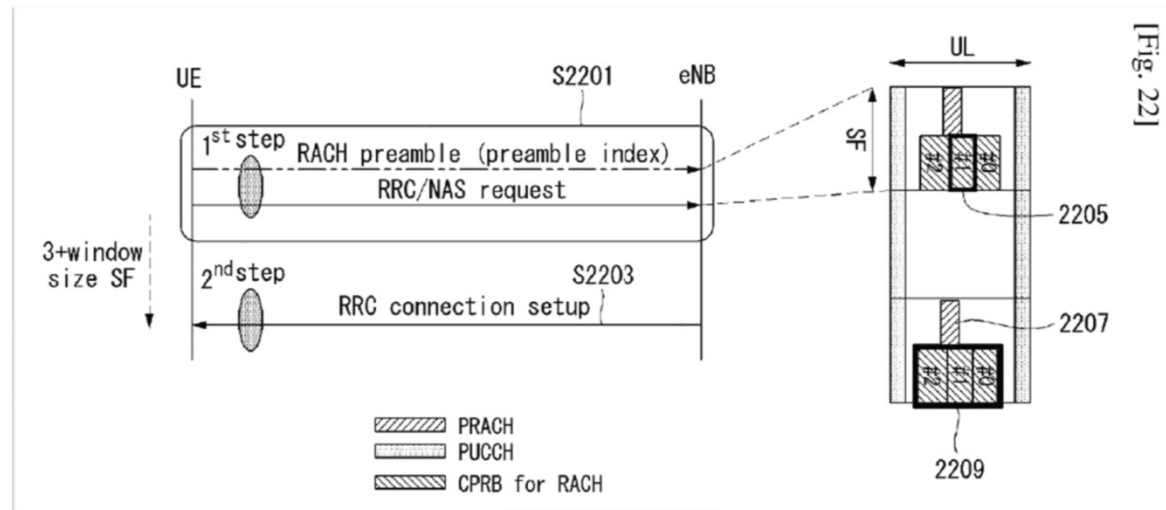
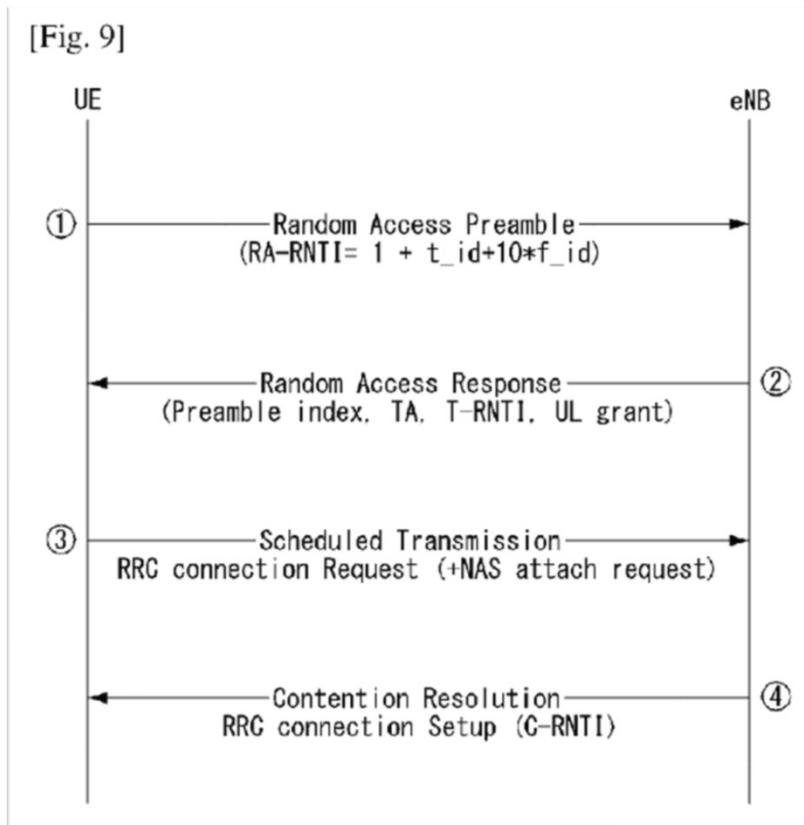
Taken together, the evidence compels that the correct meaning of these limitations is that the claims require the initial power and power ramping functions for “(0)” and “(1)” *correspond to* the 4- and 2-step procedure types. And, as now discussed, the References alone or together do not teach this limitation.

Paper 13 (PO's Sur-Reply) at 11

McKool Smith

Lee1 Discloses Two- and Four-Step Contention Based Random Access Procedures

[Fig. 9]



[Fig. 22]

Both Lee1 and Lee2 Disclose Power Ramping

[0152] First, the terminal randomly selects one random access preamble (RACH preamble) from an set of random access preambles indicated through system information or a handover command, and selects physical RACH (PRACH) resource for transmitting the random access preamble, and transmits the same. The terminal sets transmission power of the random access preamble (PREAMBLE_RECEIVED_TARGET_POWER) to ('preambleInitialReceivedTargetPower'+ 'DELTA_PREAMBLE'+ ('PREAMBLE_TRANSMISSION_COUNTER'? 1) * 'powerRampingStep'), and transmits the same. Here, "preambleInitialReceivedTargetPower" indicate initial transmission power, and "DELTA_PREAMBLE" indicates a power offset value according to a preamble format. "PREAMBLE_TRANSMISSION_COUNTER" indicates the number of preamble transmissions. "powerRampingStep" indicates a power ramping factor. These values are signaled as part of system information to the terminal.

Ex. 1005 (Lee1) at [0152]

[0030] The random access parameters include initial transmission power Preamble_Initial_Power_n, ramping power Ramping_Power_n, maximum transmission power Max_Preamble_power_n, backoff window Backoff_Window_n, retrial number Retrial_number_n, and maximum number of re-transmission Max_Total_Tx_Num.

[0031] The initial transmission power Preamble_Initial_Power_n refers to a transmission power value of a preamble that is initially transmitted by each of the random access trigger events.

[0032] The ramping power Ramping_Power_n refers to a transmission power value that is increased when ramping is performed. The ramping process means that a preamble is re-transmitted using a transmission power that is higher than that of the process of transmitting the preamble in the previous step.

Ex. 1006 (Lee2) at [0030]-[0032]

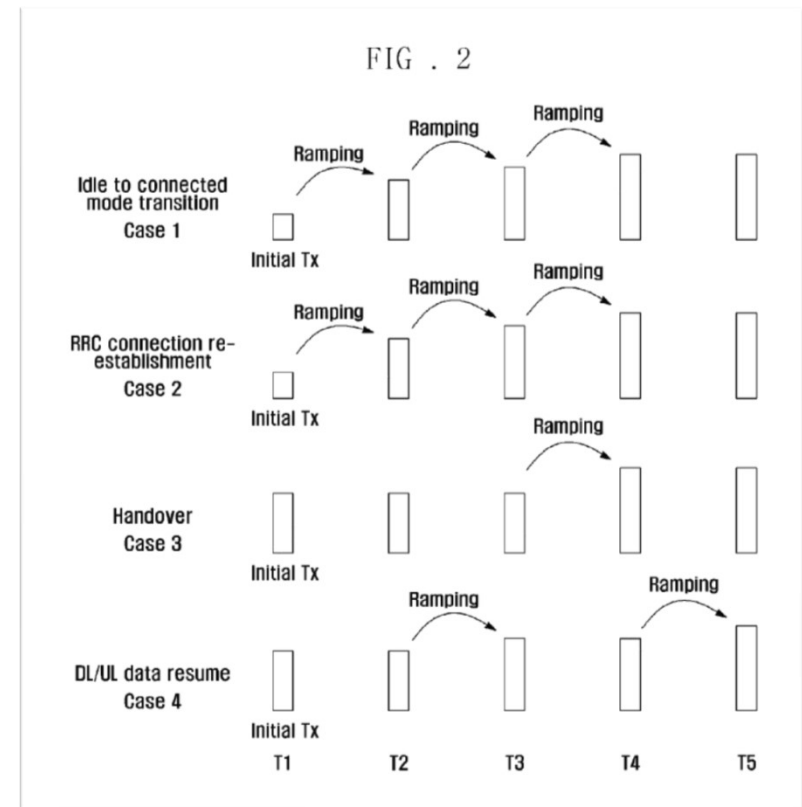
McKool Smith

Paper 2 (Petition) at 37
PD-32

Lee2 Teaches that It Is Beneficial to Use Different Initial Transmission Power and Power Ramping Parameters

[0042] As shown in FIG. 2, the number of preamble re-transmissions can be reduced by properly setting transmission power according to events (cases) and then performing preamble transmission for random access. This can also reduce the time delay to perform random access.

[0109] As described above, methods and apparatuses for random access, according to the present invention, can set different power ramping and initial transmission power of a random access preamble, according to the condition of user equipment that is performing random access and power ramping. This reduces the time delay due to random access, which enhances the performance of the wireless communication system.



Lee1/Lee2 Render the Challenged Claims Obvious

Trials@uspto.gov
571-272-7822

Paper 9
Entered: September 12, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AT&T MOBILITY LLC, AT&T SERVICES INC., ERICSSON INC.,
NOKIA OF AMERICA CORPORATION, and T-MOBILE USA, INC.,
Petitioner,

v.

DAINGEAN TECHNOLOGIES LTD.,
Patent Owner.

IPR2024-00310
Patent 10,932,207 B2

Before CHRISTOPHER L. OGDEN, JOHN R. KENNY, and
MARY C. HOFFMAN, *Administrative Patent Judges*.

HOFFMAN, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

type and can include other types of input. Based on our review of the record, combining Lee1 and Lee2 would have resulted in multiple scenarios that meet the claim language where input(*m*) is *dependent on event type*, as explicitly taught by Lee2. Ex. 1006 ¶ 49. For example, where handover is *m*=0 and RCC connection re-establishment is *m*=0, the claim is met when a handover event triggers the conventional 4-step procedure with transmission power given based on preambleInitialReceivedTargetPower(0) and powerRampingStep(0), and RCC connection re-establishment triggers the improved 2-step procedure with transmission power given by preambleInitialReceivedTargetPower(1) and powerRampingStep(1). We further note that Patent Owner's declarant acknowledges that this scenario would occur in the combination as proposed. Ex. 2002 ¶¶ 27–28 (testifying that “any of the different events could rely on a two or four step access procedure”) (“With 2-step and 4-step access procedures being possible with each event contemplated by Lee2 . . .”).

McKool Smith

Paper 9 (Inst. Dec.) at 27
PD-34

The Board's Preliminary Finding Is Unrebutted and Well Supported by Case Law



“[C]ombinations of prior art that sometimes meet the claim elements are sufficient to show obviousness.”

Unwired Planet, LLC v. Google Inc., 841 F.3d 995, 1002 (Fed. Cir. 2016)

McKool Smith

Challenged Claims are Obvious under Patent Owner's Proposed Construction

Motivation to Combine Lee1/Lee2

Lee1:

[0003] The requirements of the next-generation mobile communication system may include supporting huge data traffic, a remarkable increase in the transfer rate of each user, the accommodation of a significantly increased number of connection devices, very low end-to-end latency, and high energy efficiency. To this end, various techniques, such as

[0006] Also, another object of the present invention is to define 2-step random access procedure in order to minimize latency of the related art 4-step random access procedure.

[0249] As described above, when performing the RACH procedure of 2 steps, the existing random access procedure of 4 steps may be decreased to 2 steps, thereby minimizing overall latency in an initial access procedure.

Lee2:

[0011] The present invention has been made to address at least the above problems and/or disadvantages and to provide at least the advantages described below. Accordingly, an aspect of the present invention provides a method and apparatus that can properly allocate random access preamble transmission power in a wireless communication system, based on events for triggering random access or cases where random access needs to be performed, thereby reducing time delay due to random access.

[0109] As described above, methods and apparatuses for random access, according to the present invention, can set different power ramping and initial transmission power of a random access preamble, according to the condition of user equipment that is performing random access and power ramping. This reduces the time delay due to random access, which enhances the performance of the wireless communication system.

PO Does Not Dispute that a POSITA Would Have Been Motivated to Combine Lee1 with Lee2 to Reduce Latency

Trials@uspto.gov
571-272-7822

Paper 9
Entered: September 12, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AT&T MOBILITY LLC, AT&T SERVICES INC., ERICSSON INC.,
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DAINGEAN TECHNOLOGIES LTD.,
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IPR2024-00310
Patent 10,932,207 B2

Before CHRISTOPHER L. OGDEN, JOHN R. KENNY, and
MARY C. HOFFMAN, *Administrative Patent Judges*.

HOFFMAN, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

hindsight reasoning to arrive at the claimed configuration. The evidence suggests that Lee1 teaches or suggests all the features of claim 4, including 4- and 2-step procedures, except for the initial power and ramping powers being different for the 4- and 2-step procedures. Ex. 1005 ¶¶ 152, 249, 315. Lee2 teaches using different initial power and ramping powers dependent on event/distance. Ex. 1006 ¶ 49. Combining Lee1 and Lee2 results in a 4-step procedure and a 2-step procedure having different initial power and ramping powers. For example, as discussed above, combining Lee1 and Lee2 results in a 4-step procedure with initial power and ramping power functions set in accordance for a handover event, and a 2-step procedure having different initial power and ramping power functions set in accordance for an RCC connection re-establishment event. Petitioner also provides a sufficiently persuasive rationale to combine Lee1 and Lee2: to reduce time delay. Pet. 38, 42. At this

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Paper 9 (Inst. Dec.) at 27-28
PD-38

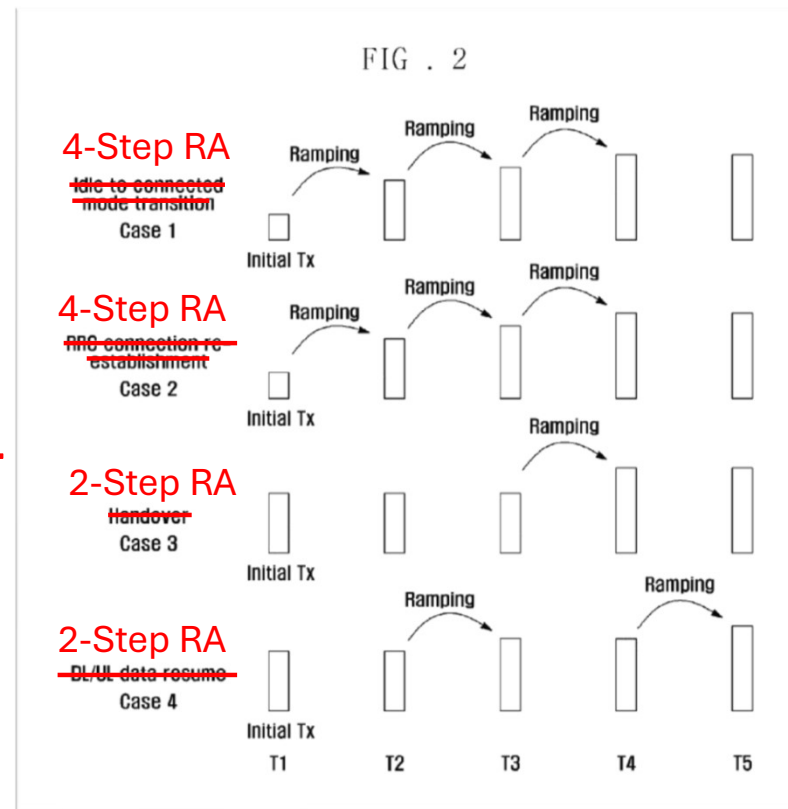
Lee2's Disclosure of Different Power Ramping Parameters for Different Cases Is Equally Applicable to Lee1 Disclosure of 2- and 4-Step Procedures

Lee1:

[0249] As described above, when performing the RACH procedure of 2 steps, the existing random access procedure of 4 steps may be decreased to 2 steps, thereby minimizing overall latency in an initial access procedure.

Lee2:

[0109] As described above, methods and apparatuses for random access, according to the present invention, can set different power ramping and initial transmission power of a random access preamble, according to the condition of user equipment that is performing random access and power ramping. This reduces the time delay due to random access, which enhances the performance of the wireless communication system.



McKool Smith

Patent Owner Maps Lee2 to the Claims to Support its Proposed Claim Construction

Paper 11
Filed: December 5, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AT&T MOBILITY LLC, AT&T SERVICES INC., ERICSSON INC.,
NOKIA OF AMERICA CORPORATION, AND T-MOBILE USA, INC.,
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v.

DAINGEAN TECHNOLOGIES LTD.,
PATENT OWNER.

CASE IPR2024-00310
PATENT 10,932,207

PATENT OWNER'S RESPONSE
37 C.F.R. § 42.120

Furthermore, the Petitioners explained when discussing Lee2 that “[t]he variable ‘n’ in ‘Preamble_Intial_Power_**n**’ and ‘Ramping_Power_**n**’ signifies that the values of these parameters differ for different types of random access (i.e., n = 1 *corresponds* to a first type of random access, n = 2 *corresponds* to a second type of random access, etc.).” Pet. 41 (citing Ex. 1003 ¶92) (emphasis added). Petitioner is correct: a POSITA understood that a parameter like “_n” in Lee2 and “(m)” in the ’207 Patent “corresponds to” types of random access for Lee2 and the number of steps in the procedure for the claims of the Patent-at-Issue. See *Arthur A. Collins*,

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Paper 11 (PO Resp.) at 33
PD-40

PO's Response Does Not Show that the Prior Art Teaches Away from the Challenged Claims

Paper 11
Filed: December 5, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AT&T MOBILITY LLC, AT&T SERVICES INC., ERICSSON INC.,
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PATENT OWNER.

CASE IPR2024-00310
PATENT 10,932,207

PATENT OWNER'S RESPONSE
37 C.F.R. § 42.120

To clarify further, Lee2 teaches to use higher initial power and lower ramping for handover procedures. Ex. 1006 [0045]. If Lee2 used such power setting for a 2-step procedure, this, according to Petitioners, would reduce latency. Pet. 42 (Ex. 1003 ¶¶ 59, 88–89). However, according to Lee2 this would reduce latency for the 4-step procedure as well. Ex. 1006 [0045] & Fig. 3. This begs the question: why then would a POSITA not use the same relatively high transmission power in the initial transmission and smaller power steps for a 4-step contention based procedure doing a handover as well? Lee1, Lee2, Petitioners, and Petitioners' Expert have provided no rationale why this would be so.

McKool Smith

Paper 11 (POR) at 41
PD-41

PO's Sur-Reply Does Not Show that the Prior Art Teaches Away from the Challenged Claims

Paper 13
Filed: April 10, 2025

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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DAINGEAN TECHNOLOGIES LTD.,
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CASE IPR2024-00310
PATENT 10,932,207

PATENT OWNER'S SUR-REPLY
37 C.F.R. § 42.23

Second, Petitioners' interpretation of its own primary reference, Lee1—the only one of Petitioners References that actually discloses a 2-step procedure—*does exactly what Petitioners now say a POSITA would not do*: use the *same* transmission powers for both 2- and 4-step random access procedures. Pet. 29–31 (arguing that Lee1 would use *the same* preambleInitialReceivedTargetPower and a powerRampingStep for *both* types of random access procedure); *see also* Ex. 1003 ¶¶75–77 (same). So, Petitioners' interpretation of Lee1 supports using the same power for both steps, and Lee2 supports that both number of steps would benefit from the same power based upon the distance from the base station. *See Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1069 (Fed. Cir. 2018) (explaining that the Board must consider a reference “for all it taught, [including] disclosures that diverged and taught away from the invention at hand”) (citation and quotation omitted).

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Paper 13 (PO Sur-Reply) at 15
PD-42

Motivation Does Not Need to Be the Only or Best Option



“Our precedent, however, does not require that the motivation be the best option, only that it be a suitable option from which the prior art did not teach away.”

PAR Pharm., Inc. v. TWI Pharms., Inc., 773 F.3d 1186, 1197–98 (Fed. Cir. 2014)

The Board Did Not Violate Patent Owner's Procedural Rights by Addressing RSRP

PO Put RSRP at Issue in Its POPR

Paper 8
Filed: June 19, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AT&T MOBILITY LLC, AT&T SERVICES INC., ERICSSON INC.,
NOKIA OF AMERICA CORPORATION, AND T-MOBILE USA, INC.,
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DAINGEAN TECHNOLOGIES LTD.,
PATENT OWNER.

CASE IPR2024-00310
PATENT 10,932,207

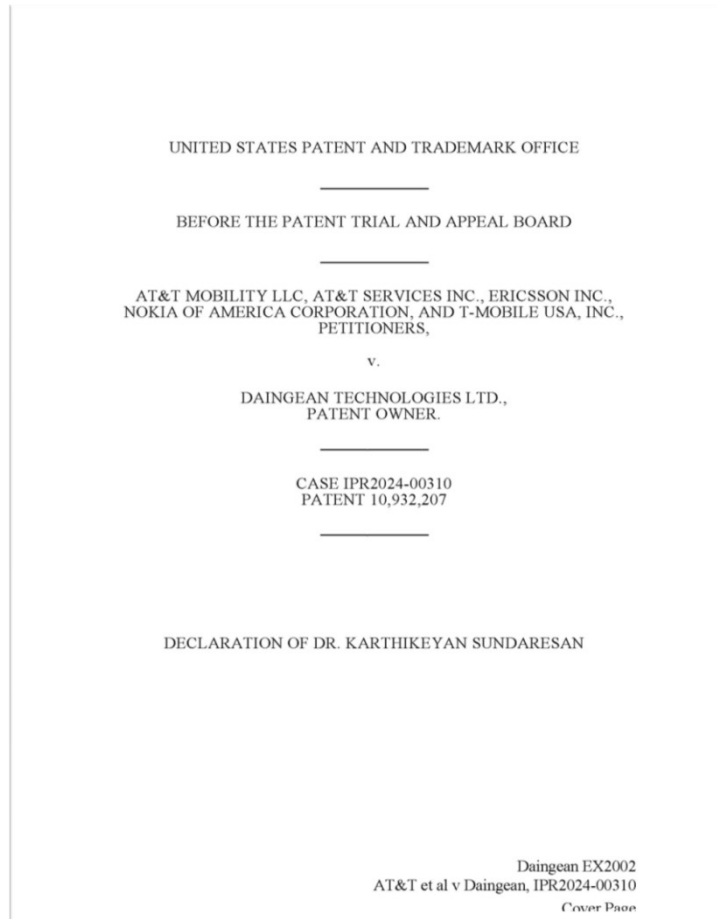
PATENT OWNER'S PRELIMINARY RESPONSE
37 C.F.R. § 42.107

However, Lee2's "case-dependent" power settings stem from Lee2's observation that the base station can discern some UE connection requests (handover and DL/UL data resume) are coming from UEs that are on the periphery of the base station's cell, so the system would benefit from an increased initial power and lower ramping values, and that the base station cannot easily determine the distance to the base station for other requests from UEs (idle to connected and RRC connection reestablishment), so the system would benefit from relatively lower initial power and higher ramping. *Supra* § III.B at page 20. But a UE is physically the same distance from a base station regardless of whether the UE is performing a 2-step or 4-step connection procedure, so Lee2's distance rationale for having different power parameters for the cases *is no rationale to have different power parameters for 2- and 4-step connection procedures.* Ex. 2002 ¶¶26–27.

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Paper 8 (POPR) at 38
PD-45

PO's Expert Attempted to Distinguish the Challenged Claims from Lee1/Lee2 Based on RSRP



¶26. Lee2 teaches that different events have different power control parameters. Lee2 further teaches that events relating to handoff and data resume operate with a higher initial power than the events relating to idle-to-connected and RRC reconnection. Of course, Lee2's reasoning for using different power settings for different procedures—certain procedures are usually performed at a farther distance from the base station—is inapplicable to the 2-step and 4-step access procedures, because any of the different events could rely on a two or four step access procedure.

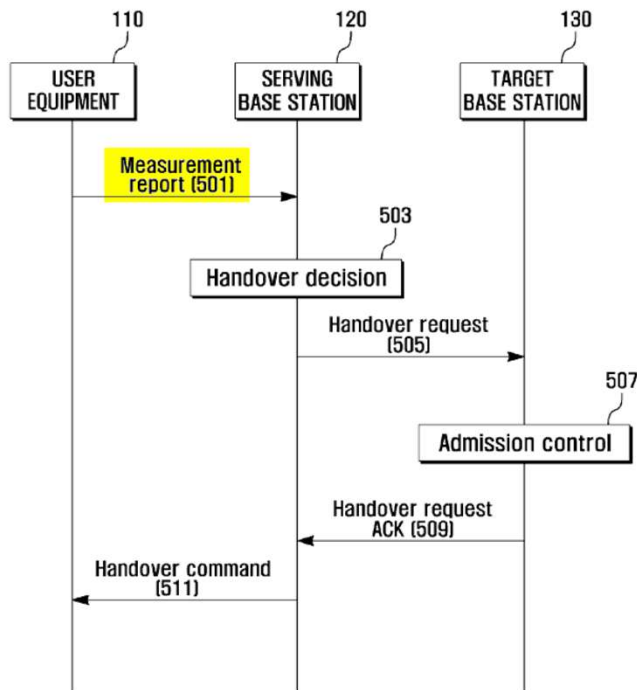
¶27. Indeed, the '207 Patent explicitly teaches that within each of these events, one could use either the 2-step or 4-step access procedure based on a RSRP threshold. See Ex. 1001 at 16:32-17:15. RSRP may or may not correspond to distance in the real world due to various wireless artifacts like shadowing or multipath fading that make signal propagation deviate from a simple path loss model and hence distance—a client close to the base station could have low RSRP but not be in need of a handoff. However, RSRP does relate to decoding capability and hence is employed for making the decision of 2-step versus 4-step in the '207 Patent. Hence, irrespective

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Ex. 2002 (Sundaresan Decl.) at ¶¶ 26-27
PD-46

Lee2 Expressly Teaches the Use of Different Power Control Parameters Depending on RSRP

FIG. 5



[0071] Although embodiments of the present invention are implemented in such a way that the random access parameters are set differently according to events (cases) for triggering random access, they may be modified so that the parameters are further set according to user equipment. For example, the user equipment 110 measures the RSRP from the base station 120, reflects the path loss between the user equipment 110 and the base station 120, according to the measured value, and sets the initial transmission power $P_{\text{Preamble_Initial_Power_n_i}}$ through the user equipment. The symbol i represents an index to identify user equipment.

[0074] When a handover is performed, the user equipment 110 measures the RSRP of the serving base station 120 and peripheral base stations and transmits the measured RSRP to the serving base station 120. The user equipment 110 does not need an additional process. The initial transmission power by user equipment, to which the path loss has been applied, $P_{\text{Preamble_Initial_Power_n_i}}$, can be determined by user equipment or by the base station according to the measurement report transmitted to the base station.

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PO Asserts that the Measured RSRP Does Not Affect the Decision to Use Either 2-Step or 4-Step Procedures

Paper 11
Filed: December 5, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

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PATENT OWNER'S RESPONSE
37 C.F.R. § 42.120

In any event, the Board-cited portion of Lee2 teaches that “the user equipment 110 measures the RSRP from the base station 120, reflects the path loss between the user equipment 110 and the base station 120, according to the measured value, and sets the initial transmission power `Preamble_Initial_Power_n_i`.” Ex. 1006 [0071]. But just like a UE is physically the same distance from a base station regardless of whether the UE is performing one of Lee2’s cases (handover, data resume, idle to connected, and RRC reestablishment), so too does the UE measure the same RSRP regardless of whether it is doing a 2-step or 4-step connection procedure. So, Lee2 is simply teaching that if $RSRP = x$, use power settings y and z . Lee2 does not say that power should be based upon RSRP and anything else, like the four cases that Lee2 say can be *alternately* used (not used in conjunction). So, neither Lee2’s distance nor RSRP rationale for having different power parameters is a motivation to have different power parameters for 2- and 4-step connection procedures. Ex. 2002 ¶¶26–27.

McKool Smith

Paper 11 (POR) at 41
PD-48

The Challenged Patent Teaches that the Decision to Initiate 2- or 4-Step Procedures Is Based Upon the Measured RSRP

 US01932207B2			
(12) United States Patent Suzuki et al.		(10) Patent No.: US 10,932,207 B2 (45) Date of Patent: Feb. 23, 2021	
(54) TERMINAL APPARATUS, BASE STATION APPARATUS, COMMUNICATION METHOD, AND INTEGRATED CIRCUIT		(52) U.S. CL. CPC ——— <i>H04W 52/36</i> (2013.01); <i>H04W 52/22</i> (2013.01); <i>H04W 74/0833</i> (2013.01); (C. continued)	
(71) Applicant: Sharp Kabushiki Kaisha, Osaka (JP); FG Innovation Company Limited, New Territories (HK)		(58) Field of Classification Search CPC — 10404.50007; 10404.5236; 10404.5235; 10404.720413; 10404.7402; (C. continued)	
(72) Inventor: Shoichi Suzuki, Osaka (JP); Wataru Ouchi, Osaka (JP); Tamaki Yoshimura, Osaka (JP); Liqing Lin, Osaka (JP)		(56) References Cited U.S. PATENT DOCUMENTS	
(73) Assignee: FG Innovation Company Limited, Hong Kong (HK); Sharp Kabushiki Kaisha, Osaka (JP)		2015-0206525 A1* 10/2015 Kim ———— <i>H04W 72/0413</i> 270-320 2018-0110074 A1* 4/2018 Akkanen ———— <i>H04W 72/0413</i> 2018-0206516 A1* 7/2018 Jung ———— <i>H04L 5/0007</i>	
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.		OTHER PUBLICATIONS "3rd Generation Partnership Project: Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and modulation (Release 13)", 3GPP TS 36.211 V13.0.0, Dec. 2015, pp. 11-42 (C. continued)	
(21) Appl. No.: 16/484,565		Primary Examiner — Harun Chowdhury <i>(74) Attorney, Agent, or Firm —</i> Imperium Patent Works	
(22) PCT Filed: Feb. 15, 2018		ABSTRACT A terminal apparatus increments a transmit counter based on a failure of random access response reception or contention resolution, and receives information for indicating a higher layer parameter powerRampingStep(1) and information for indicating a higher layer parameter powerRampingStep(2). A transmit power for PRACH transmission in the first step of a 2-step contention based random access procedure is given based at least on the transmit counter and the higher layer parameter powerRampingStep(1), and a transmit power for PUSCH transmission in the first step of the 2-step contention based random access procedure is given based at least on the transmit counter and the higher layer parameter powerRampingStep(2).	
(86) PCT No.: PCT/JP2018/005323 § 371 (c)(1), (2) Date: Aug. 8, 2019			
(87) PCT Pub. No.: WO2018/151230 PCT Pub. Date: Aug. 23, 2018			
(65) Prior Publication Date US 2020/0045650 A1 Feb. 6, 2020			
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(51) Int. CL. <i>H04W 74/18</i> (2018.01) <i>H04W 74/08</i> (2009.01) (C. continued)		8 Claims, 20 Drawing Sheets	

AT&T Mobility LLC, AT&T Services Inc., Ericsson Inc., Nokia of America Corporation, and T-Mobile USA, Inc. Exhibit 1001
IPR2024-00310
U.S. Patent 10,932,207

The terminal apparatus 1 measures RSRP from a downlink reference signal of the cell. The terminal apparatus 1 may initiate either the 2 step contention based random access procedure or the 4 step contention based random access procedure based on the measured RSRP and the threshold of the RSRP. In a case that the measured RSRP does not exceed the threshold of the RSRP, the terminal apparatus 1 may initiate the 4 step contention based random access procedure. In a case that the measured RSRP exceeds the threshold of the RSRP, the terminal apparatus 1 may initiate the 2 step contention based random access procedure.

The Board Properly Considered RSRP

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Paper 9
Entered: September 12, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

AT&T MOBILITY LLC, AT&T SERVICES INC., ERICSSON INC.,
NOKIA OF AMERICA CORPORATION, and T-MOBILE USA, INC.,
Petitioner,
v.
DAINGEAN TECHNOLOGIES LTD.,
Patent Owner.

IPR2024-00310
Patent 10,932,207 B2

Before CHRISTOPHER L. OGDEN, JOHN R. KENNY, and
MARY C. HOFFMAN, Administrative Patent Judges.

HOFFMAN, Administrative Patent Judge.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

of unpatentability. Lee2 discloses initial power and power ramping functions dependent on input. Ex. 1006 ¶¶ 63, 71–74. Specifically, Lee2 discloses using, based on measured signal power (RSRP), event/distance as input for initial power and power ramping. *Id.* Lee2 does not, nor could it, address using

development in the technology to reduce time delay. Ex. 1005 ¶ 6. Although not discussed in Lee1, the prosecution history shows that switching from 4-step to 2-step is similarly based on measured RSRP. Prelim. Resp. 39 (discussing prosecution history); Ex. 4039–40. Patent Owner’s declarant also acknowledges that there is a correlation (albeit unreliable) between RSRP and distance.

Ex. 2002 ¶ 27 (“RSRP may or may not correspond to distance in the real world due to various wireless artifacts . . .”). Accordingly, we are preliminarily persuaded that a person of ordinary skill in the art, facing the needs created by the development of new types of procedures (i.e., the 2-step), and upon recognizing the link between event/distance, procedure type, and measured RSRP, would have, in light of Lee2, seen a benefit and had a reasonable expectation of success in using initial power and power ramping functions dependent on procedure type.

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Paper 9 (Inst. Dec.) at 25
PD-50

Board Acted Within Its Authority

“However, the introduction of new evidence in the course of the trial **is to be expected in *inter partes* review trial proceedings** and, as long as the opposing party is given notice of the evidence and an opportunity to respond to it, the introduction of such evidence is perfectly permissible under the APA.”

Genzyme Therapeutic Prods. Ltd. P'ship v. Biomarin Pharm. Inc., 825 F.3d 1360, 1366 (Fed. Cir. 2016)

“In these circumstances, the mere fact that the Board **did not use the exact language** of the petition in the final written decision does not mean it changed theories in a manner inconsistent with the APA and our case law.”

Arthrex, Inc. v. Smith & Nephew, Inc., 935 F.3d 1319, 1327 (Fed. Cir. 2019)

“We conclude that the Board did not deviate from the grounds in the petition by relying upon the geometry data and citing for support the same portions of Bannuscher that the petition cited. Moreover, Sirona itself spent much of its Patent Owner Response arguing that Bannuscher does not disclose inputting the geometry data of the plaster models into a computer because of its disclosure of a recording bow...It is not the case that the Board deviated from the grounds or evidence cited in the petition. The Board simply used the term ‘geometry data’ to refer to the digitized plaster models that were expressly cited in the petition. **Because the petition provided Sirona notice and opportunity to address the portions of Bannuscher relied on by the Board, the Board's reliance on these portions of Bannuscher did not violate the APA and is not inconsistent with SAS.**”

Sirona Dental Sys. GmbH v. Institut Straumann AG, 892 F.3d 1349, 1356 (Fed. Cir. 2018)



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Summary

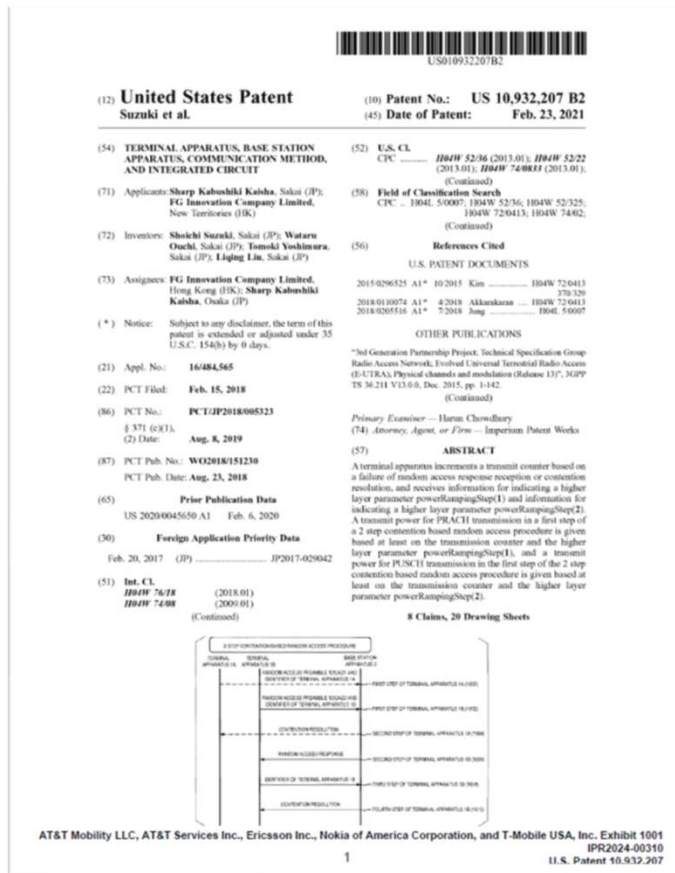
1. Background

2. The Board correctly construed the terms “preambleInitialReceivedTargetPower[0/1]” and “powerRampingStep[0/1]”

3. Under the Board’s construction, obvious is undisputed

4. Challenged Claims are obvious under Patent Owner’s proposed construction

5. The Board did not violate Patent Owner’s procedural rights by addressing RSRP



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BULLPEN

Board's Construction of Challenged Claims

“Moreover, the Board is not bound to adopt either party's preferred articulated construction of a disputed claim term.”

WesternGeco LLC v. ION Geophysical Corp., 889 F.3d 1308, 1328 (Fed. Cir. 2018)

“Clearly, TQ Delta had notice of the PTAB's understanding of the ‘reinitialize’ limitation prior to issuance of the Final Written Decision. Because TQ Delta had **notice** of the claim construction issue and the **opportunity** to be heard, the PTAB did not violate the APA.”

TQ Delta, LLC v. DISH Network LLC, 929 F.3d 1350, 1356 (Fed. Cir. 2019)

“Each of those cases stands for the proposition that the petition defines the scope of the IPR proceeding and that the Board must base its decision on arguments that were advanced by a party and to which the opposing party was given a chance to respond. None of those cases prohibits the Board from construing claims in accordance with its own analysis. **To the contrary, we have held that the Board is not limited to the claim constructions proffered by the parties, but may adopt its own claim construction of a disputed claim term.**”

VLSI Tech. LLC v. Intel Corp., 53 F.4th 646, 654 (Fed. Cir. 2022)

No Requirement that the Claims Cover Every Embodiment Disclosed in the Specification

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Ex. 1001, 27:60–63; 28:13–15. Thus, the Specification explicitly discloses, in Equation 6, a first embodiment having a *common* PREAMBLE_TRANSMISSION_COUNTER value in combination with *input-dependent* initial power and power ramping functions (i.e., preambleInitialReceivedTargetPower(m) and powerRampingStep(m)). Ex. 1001, 26:14–41. The Specification implicitly discloses an alternative embodiment having a *common* PREAMBLE_TRANSMISSION_COUNTER value in combination with *common* initial power and power ramping values (i.e., preambleInitialReceivedTargetPower and powerRampingStep). The challenged claims recite preambleInitialReceivedTargetPower(m) and powerRampingStep(m), which are functions, not preambleInitialReceivedTargetPower and powerRampingStep. Because the claims include the terminology used in the Specification to describe the first embodiment but not the alternative embodiment, which lacks initial power and power ramping functions, the challenged claims do not appear to cover the alternative embodiment. See, e.g., *PPC Broadband, Inc. v. Corning Optical Commc'ns RF, LLC*, 815 F.3d 747, 755 (Fed. Cir. 2016) (rejecting the proposition that “each and every claim ought to be interpreted to cover each and every embodiment”).

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Paper 9 (Inst. Dec.) at 12
PD-55

Patent Owner's Proposed Construction

Id. at 4061 (highlighting added). As seen, the amendments make clear that the initial target power as well as the power ramping step are a function of an input where 0 corresponds to the 4-step and 1 corresponds to the 2-step. Indeed, the

Paper 11 (P.O. Resp.) at 17

In contrast, Patent Owner's position is that the identified items are four functions that evaluate an input value corresponding at least to the two input values, 0 and 1. This is so, because the format of the items used in limitations 4c and 4d,

Paper 11 (P.O. Resp.) at 26

0 and 1. This is so, because the format of the items used in limitations 4c and 4d, *name* followed by parenthesis, specify that the `preambleInitialReceivedTargetPower()` and `powerRampingStep()`, are functions. Ex. 2002 ¶¶20–25. That is, they are a function of, or dependent on, the item within the parentheses, the independent variable. Per the claims, that independent variable is different for the two different

Paper 11 (P.O. Resp.) at 26-27

Demonstrative Exhibit – Not Evidence

mentioned) as a *reason or cause*.” Ex. 2005 at 4 (emphasis added). The specification uses “for” in this manner, saying that `preambleInitialReceivedTargetPower` and `powerRampingStep` are functions of *m* where “*m* is 0 *for* the 4 step contention based random access response procedure and the non-contention based random access procedure” and “*m* is 1 *for* the 2 step contention based random access procedure.”⁴ Ex. 1001 29:51–57. This is standard terminology for functions, meaning that “*m*” is based on the number of steps and “*m*” is set so the function evaluates correctly. Ex. 2004 ¶4. That is, the UE calculates its power formula setting *m* = 0 “for” the 4-step or non-contention based random access procedures and *m* = 1 “for” the 2-step procedure.

Paper 11 (P.O. Resp.) at 31

McKool Smith

PD-56

RSRP

Dr. Mahon:

efficient. In LTE and 5G systems, the initial RACH transmission power is set, in part, by the base station to a value which typically results in a successful random access procedure. However, since the initial power level setting is “open loop,” it also requires the mobile device to include an estimate of the downlink path loss between the serving base station and itself, leading to potential first-attempt RACH failures. Additionally, considering that the path loss estimate is a coarse approximation and there is an additional unknown amount of uplink fading that must be accounted for, power ramping is required in LTE and 5G systems, even though PRACH resources are separate from other uplink channels (*e.g.*, PUSCH and PUCCH), to maximize the likelihood of simultaneous detection of distinct preamble sequences while minimizing interference on adjacent PUSCH and PUCCH resources from asynchronous PRACH transmissions. Power ramping also increases

Ex. 1003 (Mahon Decl.), ¶46

Lee2:

are further set according to user equipment. For example, the user equipment 110 measures the RSRP from the base station 120, reflects the path loss between the user equipment 110 and the base station 120, according to the measured value, and sets the initial transmission power Preamble_Initial_Power_n_i through the user equipment. The symbol i represents an

Ex. 1006 (Lee2) at [0071]
Paper 12 (Pet.'s Reply) at 14

'207 Patent:

The terminal apparatus 1 measures RSRP from a downlink reference signal of the cell. The terminal apparatus 1 may initiate either the 2 step contention based random access procedure or the 4 step contention based random access procedure based on the measured RSRP and the threshold of the RSRP. In a case that the measured RSRP

Ex. 1001 ('207 Patent) at 16:61-66
Paper 12 (Pet.'s Reply) at 14-15

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