

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.
Petitioner

v.

G+ COMMUNICATIONS, LLC
Patent Owner

Case No.: IPR2023-00441
Patent No. 10,448,430

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE

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Statutes

35 U.S.C. § 112(f)	2, 5, 8, 10
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LIST OF EXHIBITS

Ex. No.	Description	Previously Submitted
Ex. 1001	U.S. Patent No. 10,448,430 to Zhang et al. (“the ’430 patent”)	X
Ex. 1002	Declaration of Zhi Ding, Ph.D.	X
Ex. 1003	Curriculum Vitae of Zhi Ding, Ph.D.	X
Ex. 1004	Prosecution History of U.S. Patent No. 10,448,430	X
Ex. 1005	U.S. Patent Publication No. 2013/0155894A1 (“Li”)	X
Ex. 1006	Chinese Patent Publication No. 102917433 (“Jiang”), including English translation and translation certificate	X
Ex. 1007	U.S. Patent No. 10,034,308 to Lee et al. (“Lee”)	X
Ex. 1008	Memorandum from Director Vidal (June 21, 2022)	X
Ex. 1009	Federal Court Management Statistics (June 2022)	X
Ex. 1010	Docket Control Order of August 3, 2022, <i>G+ Communications, LLC v. Samsung Electronics Co., Ltd., et al.</i> , Case No. 2:22-cv-0078-JRG (E.D. Tex.)	X
Ex. 1011	U.S. Patent Publication No. 2016/0374068 to Kim et al. (“Kim”)	X
Ex. 1012	U.S. Patent Publication No. 2014/0362794 A1 to Zhao et al. (“Zhao”)	X
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Ex. 1014	Rebuttal Declaration of Dr. Zhi Ding	
Ex. 1015	G+ Infringement Contentions - Patent US10448430 vs Samsung Galaxy A13 5G Smartphone	

I. INTRODUCTION

Samsung Electronics Co., Ltd. (“Petitioner”) submits this Reply concerning claims 1-15, 17, and 18 (“the challenged claims”) of U.S. Patent No. 10,448,430 (“the ’430 patent”) (Ex. 1001).

Both independent claims 1 and 18 recite a message 3 that includes a “pre-set UE number.” Each of Samsung’s primary references—Li and Kim—discloses a message 3 that includes a unique identifier of the UE. Samsung mapped this identifier to the claimed “pre-set UE number.”¹ At institution, the Board “construe[d] ‘pre-set UE number’ to mean one UE identified by a number” and determined that the UE identifiers in Li and Kim constitute a “pre-set UE number” under such an interpretation. (Decision, 23, 32, 40.)

After institution, the district court construed “pre-set UE number” as a “pre-set number of UEs.” (Ex. 2006 at 21.) Even though Patent Owner expressly argued in its infringement contentions that a “pre-set UE number” is broad enough to encompass a UE “identifier” (*infra* Section II), Patent Owner now adopts the district court’s construction and argues that under such a construction, neither Li nor Kim

¹ As explained below in Section II, Samsung did so based on Patent Owner’s infringement contentions at the time of the IPR filing where Patent Owner alleged that an identifier of the UE constitutes a “pre-set UE number.”

discloses the claimed “pre-set UE number.” Samsung takes no position in this IPR as to the correctness of the district court’s construction. If the Board disagrees with that construction and maintains the interpretation it set forth in the Institution Decision, then there is no dispute that at least claims 1-17 are unpatentable.

Claim 18, however, presents an additional issue. Claim 18, like claim 1, also recites the claimed “pre-set UE number.” Samsung’s analysis of “pre-set UE number” for claim 1 applies equally to claim 18. But the Board should either find claim 18 unpatentable over the prior art or not render a decision on the merits because the scope of claim 18 cannot be determined with reasonable certainty. Specifically, for claim 18, Patent Owner contends that the “sending unit” and “monitoring unit” limitations are “means-plus-function” limitations under 35 U.S.C. § 112(f) and that Samsung failed to identify corresponding structure in the ’430 patent specification. To the extent that the Board finds that a §112(f) analysis is inapplicable, as it did in the Institution Decision (Decision, 20-21), claim 18 is unpatentable if the Board also maintains its Institution Decision finding that a UE identifier is a “pre-set UE number.”

To the extent the Board agrees with Patent Owner that the “sending unit” and “monitoring unit” limitations are “means-plus-function” limitations under 35 U.S.C. § 112(f), the Board should not issue a decision on the merits for claim 18 because the corresponding structure for at least the “sending unit” cannot be determined with

reasonable certainty. *See, e.g., Micron Technology, Inc. et al. v. Unification Technologies, LLC*, IPR2021-00343, Paper 42 at 45-46 (July 8, 2022) (citing *Samsung Elecs. Am., Inc. v. Prisua Eng'g Corp.*, 948 F.3d 1342, 1353 (Fed. Cir. 2020).) Specifically, claim 18 recites a “sending unit [] configured to” perform two functions. But the specification does not disclose any structure (e.g., an algorithm) for the claimed “sending unit” and Patent Owner does not demonstrate otherwise. The '430 patent's disclosure of a general purpose computation apparatus (e.g., a processor) is not sufficient structure because the functions of the “sending unit” cannot be performed by a general purpose processor.

II. CLAIMS 1-17 ARE UNPATENTABLE IF THE BOARD MAINTAINS ITS INTERPRETATION OF “PRE-SET UE NUMBER”

Before this IPR was filed, Patent Owner argued in its infringement contentions that an identifier of the UE is a “pre-set UE number.” Patent Owner alleged that the message 3 aspect of the claim is met by the accused devices because there is a C-RNTI (a unique identifier of the UE) in message 3:

Upon information and belief, the Msg3 comprises a C-RNTI field which is a unique UE identification The C-RNTI MAC CE field contains the C-RNTI of the MAC entity (User Equipment).

Upon information and belief, the C-RNTI MAC CE filed comprises a “pre-set UE number.”

(Ex. 1015 at 29.) Relying on Patent Owner's mapping, Samsung alleged in its IPR

Petition that both Li and Kim have a “pre-set UE number” in their respective Message 3 because their Message 3 includes a unique identifier of the UE. However, in the intervening time, the District Court has construed the claim terms. Patent Owner now disclaims its claim construction position taken in District Court, instead asking the Board to adopt the district court’s construction of “pre-set UE number” as a “pre-set number of UEs.” (Response, 19.)

While Li and Kim don’t disclose that the message 3 includes a “pre-set number of UEs,” they do satisfy the “pre-set UE number” under the Board’s interpretation of that term in the Institution Decision. Thus, if the Board maintains its interpretation of “pre-set UE number,” at least claims 1-17 are unpatentable, as explained below.

A. Li Anticipates Claims 1, 2, 3, 7, 11, and 13-15

Patent Owner’s sole argument against claims 1, 2, 3, 7, 11, and 13-15 is based on the district court’s construction of “pre-set UE number.” (Response, 26-27.) Specifically, Patent Owner contends that Li’s unique UE identifier is not a “pre-set UE number” under the district court’s construction. (*Id.*) But if the Board disagrees with Patent Owner and maintains its interpretation from the Institution Decision, then there is no dispute that Li anticipates claims 1, 2, 3, 7, 11, and 13-15.

B. Claims 5, 6, and 8-10 Are Obvious Based on Li, Lee, Zhao, and Jiang

For claims 5, 6, and 8-10, Patent Owner offers no argument beyond its

argument for claim 1. (Response, 30-31.) Therefore, claims 5, 6, and 8-10 should be found obvious if claim 1 is found unpatentable.

C. The Kim-based Grounds Render Obvious Claims 1, 2-10, 12, 13, and 17

Patent Owner’s sole argument against the Petition grounds 5-8 (that are based on Kim) for claims 1, 2-10, 12, 13, and 17 is premised on the district court’s construction of “pre-set UE number.” (Response, 31-33.) Specifically, Patent Owner contends that Kim’s UE identifier is not a “pre-set UE number” under the district court’s construction. (*Id.*) But if the Board finds that the term “pre-set UE number” should not be limited to a “pre-set number of UEs,” there is no dispute that grounds 5-8 render obvious claims 1, 2-10, 12, 13, and 17.

III. THE SCOPE OF CLAIM 18 CANNOT BE DETERMINED WITH REASONABLE CERTAINTY

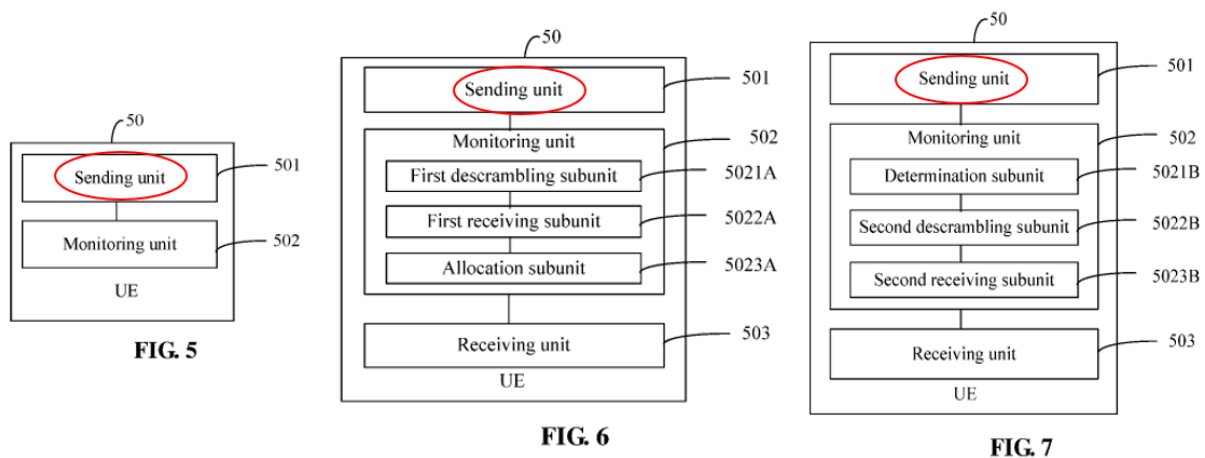
Claim 18 recites a “sending unit [] configured to” perform two functions: (a) “send a preamble to an evolved Node B (eNB) over a time-frequency resource, the time-frequency resource comprising a time domain resource and a frequency domain resource,” and (b) “send a message 3 according to a Uplink (UL) grant allocated to the UE, wherein the message 3 comprises a number of UEs having random access requests in a UE group or a number of UEs contained in the UE group or a pre – set UE number.” Patent Owner agrees that the “sending unit” limitation is a “means-plus-function” limitation under 35 U.S.C. § 112(f). (Response, 22-25; Petition, 21

n.5.) But the '430 patent specification does not disclose the required structure for this mean-plus-function limitation.

“When a claim term lacks the word ‘means,’ the presumption [that § 112, para. f does not apply] can be overcome and [§ 112, para. f] will apply if the challenger demonstrates that the claim term fails to ‘recite sufficiently definite structure’ or else recites ‘function without reciting sufficient structure for performing that function.’” *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015). Here, the claimed “sending unit” performs two complex functions (set forth above). But the claim does not recite sufficiently definite structure for performing the claimed functions. (Ex. 1014, ¶¶3-4.) The term “unit” is a nonce term that, standing alone, does not connote any particular structure. *Diebold Nixdorf, Inc. v. Int'l Trade Comm'n*, 899 F.3d 1291, 1301 (Fed. Cir. 2018). The addition of the word “sending” to “unit” also does not convey any sufficiently definite structure. (Ex. 1014, ¶4.) Patent Owner agrees. (Response, 24 (“the term ‘unit’ here ‘does not provide an indication of structure because it sets forth the same black box recitation of structure for providing the same specified function as if the term ‘means’ has been used.”)) (citing *Williamson*, 792 F.3d at 1350).

As such, the written description of the specification must be consulted to identify the structure corresponding to the identified function. *Williamson*, 792 F.3d 1339, 1351-52. But Patent Owner identifies no structure in the '430 patent for the

claimed “sending unit.”² And that is not surprising because the specification does not disclose structure (e.g., an algorithm) for the claimed “sending unit.” (Ex. 1014, ¶¶5-7.) The specification does not provide any structural discussion pertaining to the “send[ing]” function. Instead, the “sending unit” is repeatedly shown as a black box in the drawings (as shown below) and the corresponding description of the “sending unit” simply tracks the express language of the claimed function. (See, e.g., Ex. 1001, 6:8 (“send a preamble ...”), 6:45 (“send a message 3 ...”), 7:20-21, 4:41-44, 25:55-62, 26:30-32.)



(Ex. 1001, FIGS. 5-7 (annotated).)

² While Patent Owner agrees with and adopts the district court’s identified algorithm as the structure for “monitoring unit,” Patent Owner does not comment on the district court’s findings regarding “sending unit.” (Response, 25.)

Further, while the specification suggests that the embodiments may be implemented via computer program in a processor or an integrated circuit, (*see id.* at 28:46-29:62), it fails to disclose any computer program algorithm or an integrated circuit design capable of performing the claimed function. Simply disclosing a black box that performs the recited function,” as is the case here, “is not a sufficient explanation of the algorithm required to render the means-plus-function term definite.” *Augme Technologies, Inc. v. Yahoo! Inc.*, 755 F.3d 1326, 1338 (Fed. Cir. 2014).

A POSITA would recognize that sending of a preamble and message 3 at least requires specialized software (Ex. 1014, ¶¶8-9), which confirms that disclosure of a general purpose processor in the specification is insufficient to satisfy the requirement of §112(f). Claim 18 is thus indefinite and its scope cannot be determined with reasonable certainty. *Williamson*, 792 F.3d at 1352 (“If the patentee fails to disclose adequate corresponding structure, the claim is indefinite.”).

The district court’s contrary finding is incorrect. (Ex. 2006 at 24-26.) While the district court agreed that §112(f) applies, it determined that the corresponding structure for a “sending unit” is merely “the combination of a processor and transmitter” even though a ““a transmitter is never expressly mentioned in the patent.” (*Id.* at 25.) Per the district court, transmitters are well-known devices that enable communication between UEs and eNodeBs. (*Id.*) But “consideration of the

understanding of one skilled in the art in no way relieves the patentee of adequately disclosing sufficient structure in the specification.” *Atmel Corp. v. Info. Storage Devices, Inc.*, 198 F.3d 1374, 1380 (Fed. Cir. 1999). Indeed, “[t]he inquiry is whether one of skill in the art would understand ***the specification itself*** to disclose a structure, not simply whether that person would be capable of implementing a structure.” *Biomedino, LLC v. Waters Techs. Corp.*, 490 F.3d 946, 953 (Fed. Cir. 2007) (internal citation omitted) (emphasis added); *see also Zscaler v. Symantec Corp.*, IPR2018-00916, Paper 41 at 7-9 (November 14, 2019) (“As the Federal Circuit has noted: ‘structure disclosed in the specification is ‘corresponding’ structure *only* if the specification or prosecution history clearly links or associates that structure to the function recited in the claim. This requirement to link or associate structure to function is the quid pro quo for the convenience of employing § 112, ¶ 6.’”) (emphasis in original), citing *Saffran v. Johnson & Johnson*, 712 F.3d 549, 562 (Fed. Cir. 2013) (quoting *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997)). Here, as shown above, there is no such structure or algorithm in the specification linked to the claimed sending unit.

Even if one accepts that a transmitter was well-known, the district court’s identified structure is still problematic because it includes no more than a general purpose processor. There is no evidence that a general purpose processor in combination with a transmitter can “send a preamble to an evolved Node B (eNB)

over a time-frequency resource, the time-frequency resource comprising a time domain resource and a frequency domain resource,” and (b) “send a message 3 *according to a Uplink (UL) grant allocated to the UE*, wherein the message 3 comprises a number of UEs having random access requests in a UE group or a number of UEs contained in the UE group or a pre – set UE number.” (Ex. 1014, ¶9.) In fact, it cannot. (*Id.*) As such, the district court had to identify an algorithm for the “sending unit” like it did for the “monitoring unit.” But it did not do so because there is no algorithm disclosed for the sending unit in the ’430 patent specification.

Claim 18 is thus indefinite and its scope cannot be determined with reasonable certainty. (Ex. 1014, ¶10.)

IV. CLAIM 18 IS EITHER UNPATENTABLE OR THE BOARD SHOULD NOT RENDER A DECISION ON THE MERITS FOR CLAIM 18

As discussed above in Section III, claim 18 invokes §112(f) and is indefinite because the required structure is not disclosed in the specification. To the extent the Board disagrees that §112(f) applies (e.g., if the Board continues to believe that the presumption against construing “sending unit” and “monitoring unit” as means plus function terms is not overcome, *see* Decision at 20-21), and proceeds to apply the “plain and ordinary meaning for all terms” (*id.* at 24), claim 18 is unpatentable. For example, Li expressly discloses both a “sending unit” and a “monitoring unit” that perform the claimed functions. (Petition, 21-23.) And the Board previously found

that Li and Kim disclose that the message 3 includes a “pre-set UE number.” (*Supra* Section II.)

If the Board, however, agrees that claim 18 is indefinite (*supra* Section III), i.e., it cannot ascertain the scope of claim 18 with reasonable certainty, it should not reach a decision on the merits with respect to that claim. *Samsung*, 948 F.3d at 1353 (“[T]he proper course for the Board to follow, . . . , if the indefiniteness issue affects only certain claims, to conclude that it could not reach a decision on the merits with respect to whether petitioner had established the unpatentability of those claims under sections 102 or 103.”).

Respectfully submitted,

Dated: February 15, 2024

By: /Naveen Modi/
Naveen Modi (Reg. No. 46,224)

Counsel for Petitioner

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that the foregoing Petitioner's Reply to Patent Owner's Response contains, as measured by the word-processing system used to prepare this paper, 2,445 words. This word count does not include the items excluded by 37 C.F.R. § 42.24(a).

Respectfully submitted,

Dated: February 15, 2024

By: /Naveen Modi/
Naveen Modi (Reg. No. 46,224)

Counsel for Petitioner

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), I certify that I caused to be served on the counsel for Petitioner a true and correct copy of the foregoing Petitioner's Reply to Patent Owner's Response and supporting exhibits by electronic means at the following address of record:

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