

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 IPR2023-00441
Patent No. 10,448,430

REBUTTAL DECLARATION OF DR. ZHI DING

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	CLAIM CONSTRUCTION	Error! Bookmark not defined.
III.	CONCLUSION	7

I, Zhi Ding, declare as follows:

I. INTRODUCTION

1. As I testified in my declaration signed January 4, 2023, which I understand has been labeled as Exhibit 1002 in this proceeding, I have been retained by Samsung Electronics Co., Ltd. (“Petitioner”) as an independent expert consultant in this proceeding before the United States Patent and Trademark Office (“PTO”) regarding U.S. Patent No. 10,448,430 (“the ’430 patent”) (Ex. 1001). As with my previous work relating to this proceeding, no part of my compensation is contingent on the nature of my findings, the presentation of my findings in testimony, or the outcome of this or any other proceeding. I have no other interest in this proceeding. Relevant aspects of my educational background, career history, and other qualifications were provided in my January 4, 2023 declaration. (*See* Exhibit 1002, ¶¶ 3-17.)

2. In this declaration, I provide my opinions in rebuttal to certain positions that I understand have been asserted by Patent Owner in its Patent Owner Response (which I understand is labeled as Paper 12 in this proceeding). My rebuttal opinions

are set forth below.¹ My opinions in this rebuttal declaration are based on the documents I reviewed and my knowledge and professional judgment. In forming my opinions in this rebuttal declaration, I considered certain positions asserted by Patent Owner in its Patent Owner Response and any other materials that I refer to in this declaration in support of my opinions. In forming these opinions, I have also drawn on my knowledge and experience in the field of wireless communication technology, and rely on my opinions and discussions set forth in my January 4, 2023 declaration, including my opinions regarding the level of skill of one of ordinary skill in the art. In providing my rebuttal to Patent Owner's positions, I do not change my opinions that I provided in my January 4, 2023 declaration.

II. SENDING UNIT

3. Claim 18 recites "A User Equipment (UE), comprising: a sending unit," where the sending unit is configured to perform the following two functions: to (i) 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,

¹ Although I respond to selected positions asserted by Patent Owner, doing so does not mean that I agree with any of Patent Owner's positions that I do not respond to in this rebuttal declaration.

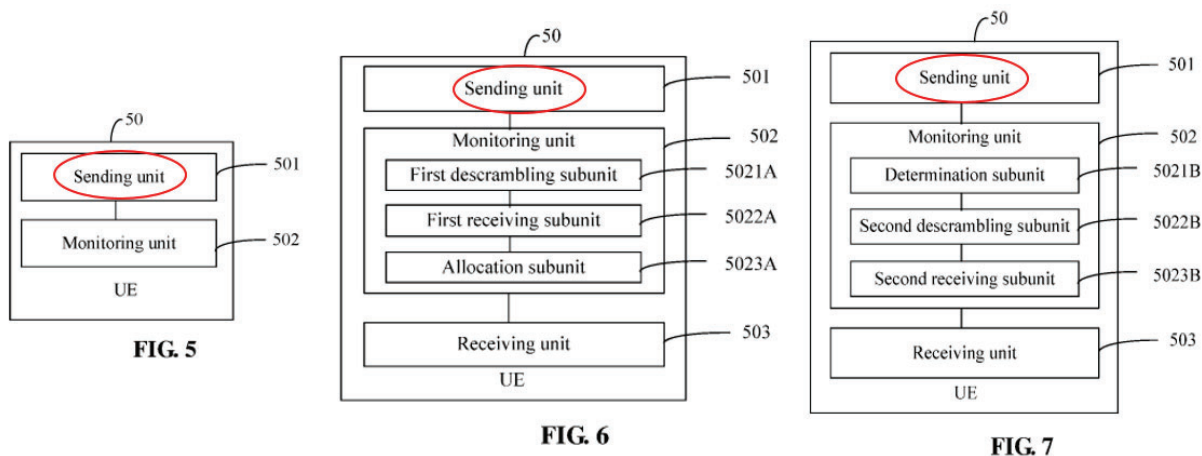
(ii) send a message 3 according to a Uplink (UL) grant allocated to the UE, wherein the message 3 comprises a number of UEs having random access requests in a UE group or a number of UEs contained in the UE group or a pre – set UE number.

(Ex. 1001, 32:41, 32:43-47, 32:51-56.)

4. I have analyzed whether a person of ordinary skill in the art, as I defined in my January 4, 2023 declaration (*see* Exhibit 1002, ¶¶ 23-24), would have understood the term “sending unit” as corresponding to a known definite structure for accomplishing the above-noted two functions. In my opinion, the term “sending unit” does not have such a sufficiently definite meaning in the art and a person of ordinary skill would not have associated that term with a particular circuit or structure. The term “unit” is a generic term that does not provide any indication regarding the structure required to perform the two functions. The term “sending” in front of the word “unit” does not add any clarity regarding any particular structure connoted by a “sending unit” that would have been capable of carrying out the above two functions.

5. Next, I have analyzed the specification of the ’430 patent to determine whether it identifies any structure corresponding to the above-noted two functions that the “sending unit” is configured to perform. The specification does not disclose

any such structure (e.g., an algorithm). First, the sending unit is depicted as a box in the figures (as shown below) without any further indication of its structure.



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

6. The description of the sending unit in the specification tracks the above-noted functions recited in the claim, and does not describe these functions in any more detail.

The embodiments of the disclosure also provide a UE. The UE includes: a sending unit and a monitoring unit, herein the sending unit is configured to: send a preamble to an eNB over a time-frequency resource, the time-frequency resource including a time domain resource and a frequency domain resource; and

(Ex. 1001, 6:6-11.)

In an embodiment, the sending unit is further configured to: send a message 3 according to the UL grant allocated to the UE.

(Ex. 1001, 6:45-47.)

On the basis of the same technical thought of the above-mentioned embodiments, FIG. 5 shows a UE 50 according to an embodiment of

the disclosure. The UE may include: a sending unit 501 and a monitoring unit 502, herein the sending unit 501 is configured to: send a preamble to an eNB over a time-frequency resource, the time-frequency resource including a time domain resource and a frequency domain resource; and (Ex. 1001, 25:55-62; *see also id.*, 7:20-21.)

In an embodiment, the sending unit 501 may be further configured to: send a message 3 according to the UL grant allocated to the UE. (Ex. 1001, 26:30-32; *see also id.*, 4:41-44.)

7. Thus, the above drawings and description of a sending unit in the specification do not describe any additional detail other than what is already recited in the claim. As such, a person of ordinary skill in the art would not have understood these disclosures as identifying sufficiently definite structure for performing the claimed functions of the “sending unit.”

8. I have also considered whether the above-noted two functions associated with the claimed “sending unit” could have been performed by a general-purpose computer (e.g., a processor) in conjunction with a conventional transmitter that enables communication between UEs and eNodeBs. In my opinion, the claimed sending unit is configured to perform two technically complex and non-routine functions that could not have been performed by a combination of a general-purpose computer (e.g., a processor) and a conventional transmitter. Rather, a person of

ordinary skill in the art would have understood these functions to require specialized software (e.g., an algorithm) or specialized circuitry.

9. For example, claim 18 recites that “the sending unit is further configured to: 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. 1001, 32:51-56 (emphasis added).) A person of ordinary skill in the art would have understood that implementing this function would have required specialized software (e.g., an algorithm) to, e.g., process and parse the UL grant allocated to the UE and generate the message 3 based on the results of such processing and parsing. Similarly, a person of ordinary skill in the art would have understood that implementing this function would have required specialized software (e.g., an algorithm) to, e.g., determine whether the message 3 included “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,” as claimed. No specialized software is disclosed by the specification of the ’430 patent describing the process for generating the contents of the message 3.

10. Therefore, in my opinion, the ’430 patent does not identify structure (e.g., an algorithm) that corresponds to the two functions that the “sending unit” is configured to perform.

III. CONCLUSION

11. I declare that all statements made herein of my knowledge are true, and that all statements made on information and belief are believed to be true, and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: February 15, 2024

 Digitally signed by
Zhi Ding
Date: 2024.02.15
12:50:00 -08'00'

Zhi Ding