

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

EVOLVED WIRELESS, LLC,)
)
 Plaintiff,)
)
 v.) Civ. No. 15-542-SLR
)
 APPLE, INC.,)
)
 Defendant.)

EVOLVED WIRELESS, LLC,)
)
 Plaintiff,)
)
 v.) Civ. No. 15-543-SLR
)
 HTC CORPORATION and)
 HTC AMERICA, INC.,)
)
 Defendants.)

EVOLVED WIRELESS, LLC,)
)
 Plaintiff,)
)
 v.) Civ. No. 15-544-SLR
)
 LENOVO GROUP LTD.)
 LENOVO (UNITED STATES) INC., and)
 MOTOROLA MOBILITY)
)
 Defendants.)

EVOLVED WIRELESS, LLC,)
)
 Plaintiff,)
)
 v.) Civ. No. 15-545-SLR
)
 SAMSUNG ELECTRONICS CO., LTD.)
 and SAMSUNG ELECTRONICS)
 AMERICA, INC.,)
)
 Defendants.)

EVOLVED WIRELESS, LLC,)
)
 Plaintiff,)
)
 v.) Civ. No. 15-546-SLR
)
 ZTE CORPORATION, ZTE (USA) INC.,)
 and ZTE SOLUTIONS INC.)
)
 Defendants.)

EVOLVED WIRELESS, LLC,)
)
 Plaintiff,)
)
 v.) Civ. No. 15-547-SLR
)
 MICROSOFT CORPORATION,)
 MICROSOFT MOBILE OY and)
 NOKIA INC.,)
)
 Defendants.)

MEMORANDUM ORDER

At Wilmington this 14th day of November, 2016, having heard argument on, and having reviewed the papers submitted in connection with, the parties' proposed claim construction;

IT IS ORDERED that the disputed claim language of U.S. Patent Nos. 7,746,916 (“the ‘916 patent”); 7,768,965 (“the ‘965 patent”); 7,809,373 (“the ‘373 patent”); 7,881,236 (“the ‘236 patent”); and 8,218,481 (“the ‘481 patent”) shall be construed consistent with the tenets of claim construction set forth by the United States Court of Appeals for the Federal Circuit in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005), as follows:

The ‘916 Patent

1. A code sequence generator for generating a code sequence having a second length by cyclic extension of a code sequence having a first length, and performing a circular shift to the code sequence having the second length:¹

“Hardware and/or software in the apparatus that is capable of generating a code sequence having a second length by cyclic extension of a code sequence having a first length, and performing a circular shift to the code sequence having the second length.”
Structure is identified in the specification as a “basic code sequence generation unit

¹ Found in claim 6 of the ‘916 patent.

1701.”² (‘916 patent, 15:36-16:7) Defendants failed to shift the § 112, ¶ 6 burden to plaintiff.³ (See D.I. 73 at 4) Section 112, ¶ 6 does not apply.⁴ Not indefinite.⁵

² In addition to the structure identified in the specification, plaintiff’s expert, Dr. Cooklev, demonstrated that a person having ordinary skill in the art would identify structure in the specification. (D.I. 66 at ¶¶ 72-74)

³ When a claim uses the word “means,” the presumption is that § 112, ¶ 6 applies. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349 (Fed. Cir. 2015). Generic terms may be used “in a manner that is tantamount to using the word ‘means’ because they ‘typically do not connote sufficiently definite structure.’” *Id.* at 1350 (citations omitted). Defendants argued that the present term is one of “[e]ven claim limitations [that] **require construction** as means-plus-function terms under § 112, ¶ 6 because each recites one of five nonce words—module, generator, unit, entity, and protocol.” (D.I. 73 at 1) (citing *Williamson*) The cited text in *Williamson* does not support this proposition with respect to the terms “generator,” “entity,” “unit,” and “protocol.” Moreover, *Williamson* articulated a two-part test, applying § 112, ¶ 6 to the term “distributed learning control module,” because the court determined that: “module” was a “well-known nonce word that can operate as a substituted for ‘means,’” **and** the “distributed learning control” prefix did not “provide any indication of structure.” *Williamson*, 792 F.3d at 1350-51. An outcome of this two-part test is that the alleged “nonce word” is interpreted to be equivalent to the term “means,” which “creates a presumption that § 112, ¶ 6 applies,” thereby shifting the burden to the patentee. *Id.* at 1349. Defendants did not address the second part of the *Williamson* test; therefore, the burden has not shifted, and the presumption is that § 112, ¶ 6 does not apply. (See D.I. 73 at 4-9)

⁴ In order to rebut the presumption that § 112, ¶ 6 does not apply, defendants carry the burden to demonstrate “that the claim term fails to ‘recite sufficiently definite structure’ or else recites ‘function without reciting sufficient structure for performing that function.’” *Williamson*, 792 F.3d at 1349. Defendants failed to rebut the presumption.

⁵ Defendants argued that the specification does not disclose how to generate a code sequence. (D.I. 73 at 10) A person with “a bachelor’s degree in electrical engineering [and] 2-3 years of experience in cellular communication systems and [who] would have been aware of the Third Generation Partnership Project (“3GPP”) and its work on the LTE standard” would know how to generate a code sequence. (See D.I. 66 at ¶ 23) Defendants also argued that “the claimed functions of generating a code sequence and performing a circular shift are not clearly linked to any sort of code sequence generator.” (D.I. 73 at 11) The Patent Act, § 112, ¶ 2 requires “that a patent’s claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, ___ U.S. ___, 134 S.Ct. 2120, 2129 (2014). Here, claim 6 includes several limitations that, with reasonable certainty, inform those skilled in the art about the scope of the invention. (See D.I. 85 at 11-12)

2. A transmitting unit for transmitting the circular shifted code sequence having the second length:⁶ “Hardware and/or software in the apparatus that is capable of transmitting the circular shifted code sequence having the second length.” Defendants failed to shift the § 112, ¶ 6 burden to plaintiff.⁷ Section 112, ¶ 6 does not apply.⁸ Not indefinite.⁹ Structure is identified in the specification with reference to figure 16. (‘916 patent, 15:6-21; fig. 6, item 1603)

The ‘965 Patent

3. A sequence selecting module acquiring information about predetermined two or more random access preamble sequence sets, selecting one random access preamble sequence set from among the predetermined random access preamble sequence sets considering at least one of a size of information to be transmitted by the apparatus and a degree of a path loss, and randomly selecting a specific sequence within the selected random access sequence set:¹⁰ “Hardware and/or software in the user equipment that is capable of performing the following algorithm: acquire information about predetermined two or more random access preamble sequence sets, select one random access preamble sequence set from among the predetermined random access preamble sequence sets considering at least one of a size of information to be transmitted by the apparatus and a degree of a path loss, and randomly select a specific sequence within the selected

⁶ Found in claim 6 of the ‘916 patent.

⁷ See *supra* note 3.

⁸ See *supra* note 4.

⁹ Defendants presented no evidence as to how or why the claims of the ‘916 patent, “viewed in light of the specification and prosecution history, [would fail to] inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus*, 134 S.Ct. at 2129.

¹⁰ Found in claim 8 of the ‘965 patent.

random access sequence set.” Structure is identified in the specification with reference to figure 16. (’965 patent, 19:6-30, fig. 16, item 1101) Defendants failed to shift the § 112, ¶ 6 burden to plaintiff.¹¹ Section 112, ¶ 6 does not apply.¹² Not indefinite.^{13,14}

4. **An access module accessing a random access channel using the specific sequence selected by the sequence selecting module:**¹⁵ “Hardware and/or software in the user equipment that is capable of transmitting the specific selected sequence on the random access channel to the base station.” Structure is identified in

¹¹ See *supra* note 3.

¹² See *supra* note 4.

¹³ Defendants argued that the specification does not disclose sufficient structure or algorithm under § 112, ¶ 6, but defendants did not address the criteria identified in *Nautilus*; therefore, the court adopts plaintiff’s construction. (D.I. 73 at 12)

¹⁴ Defendants argued that numerous claims are indefinite for improperly mixing system claims and method steps. (D.I. 73 at 19) The accused claims are claim 8 of the ’965 patent; claims 7-10 and 12-13 of the ’236 patent; and claim 24 of the ’373 patent. (D.I. 73 at 19-20) These claims are not indefinite, because *IPXL* and *Rembrandt* do not apply. For example, defendants argued that “a sequence selecting module” and “an access module” in claim 8 of the ’965 patent mix method steps in a system claim. (D.I. 73 at 19) A claim is indefinite under § 112, ¶ 2 if it “recites a system and the method for using that system.” *IPXL Holdings, LLC v. Amazon.com, Inc.*, 430 F.3d 1377, 1384 (Fed. Cir. 2005); see also *Rembrandt Data Techs., LP v. AOL, LLC*, 641 F.3d 1331, 1339 (Fed. Cir. 2011). In *IPXL*, the claim recited both “[t]he system” and “the user uses the input means.” *IPXL*, 430 F.3d at 1384. In *Rembrandt*, the claim claimed “a data transmitting device . . . comprising: first buffer means . . . fractional encoding means . . . second buffer means . . . and **transmitting** the trellis encoded frames.” *Rembrandt*, 641 F.3d at 1339 (emphasis added). Here, claim 8 of the ’965 patent recites the “sequence selecting module **acquiring** information . . . [and] **selecting** one random access preamble sequence.” (’965 patent, claim 8) (emphasis added) Claim 8 also recites “an access module **accessing** a random access channel.” (*Id.*) (emphasis added) This is functional language, but it is not an improper combination of system and method claims as in either *IPXL* or *Rembrandt*.

¹⁵ Found in claim 8 of the ’965 patent.

the specification. ('965 patent, 19:6-37, fig. 16, item 1102) Defendants failed to shift the § 112, ¶ 6 burden to plaintiff.¹⁶ Section 112, ¶ 6 does not apply.¹⁷ Not indefinite.^{18,19}

The '373 Patent

5. **Handover:**²⁰ "Transfer of a terminal's connection with a source base station to a target base station." The court adopts defendants' proposal. The specification discusses "handover" extensively but does not define the term; therefore, the plain and ordinary meaning applies.²¹ Plaintiff argued that a handover in the patent is a "hard handover" and that the term should be construed as

a process to transfer a telecommunication link by establishing radio connection with the target base station **after radio connection with the source base station has ceased.**

(D.I. 60 at 14-18) (emphasis added) In support of this construction, plaintiff cited to the prosecution history and to figure 9, which "shows an exemplary diagram for transmitting and receiving radio connection information according to an exemplary embodiment of the present invention." ('373 patent, 6:6-8) The language in the specification with reference to figure 9 does not limit the scope of the patent to so-called "hard handovers."²² The prosecution history shows that the applicant amended claim 1 to

¹⁶ See *supra* note 3.

¹⁷ See *supra* note 4.

¹⁸ Defendants argued that the disclosed structure in the specification is insufficient to perform the function ascribed to it. (D.I. 73 at 13) In support, defendants presented attorney argument couched in conclusory expert statements. (D.I. 74 at ¶¶ 87-101) For these reasons, the court adopts plaintiff's construction.

¹⁹ See *supra* note 14.

²⁰ Found in claims 1, 4, 7, 8, 13, 15, 17, and 23-24 of the '373 patent.

²¹ See, e.g., D.I. 75, ex. 3 at 3.

²² The specification does not employ any terms such as: "hard" handovers, "soft" handovers, "make-before-break," or "break-before-make." The claims are not limited to hard handovers.

overcome the Samuel reference and argued that “Samuel relates to a method for soft vertical handovers,”²³ but the prosecution history does not contain a statement about the application that could, today, be interpreted as limiting with respect to hard handovers. (See JA-1325) Moreover, in making their arguments, both parties employed adjectives (e.g., “soft,” “hard,” “make-before-break,” and “break-before-make”) to describe the term “handover.” This alone supports a plain and ordinary meaning that is broader than the construction proposed by plaintiff. For these reasons, the court adopts defendants’ construction.

6. **Target base station:**²⁴ “The source base station determines that the mobile terminal will be transferred to the target base station.” The court adopts plaintiff’s proposal.²⁵ This construction is supported by the specification and the claims. (‘373 patent, 5:15-17; 6:58-63; 6:19-23) The parties disagreed on whether the mobile

²³ See U.S. Patent No 7,843,882 (filed Aug. 23, 2004) (entitled “Soft Vertical Handovers in Wireless Networks.”).

²⁴ Found in claims 1, 3, 8, 15, 18, 20, and 23-25 of the ‘373 patent.

²⁵ Defendants proposed that, “target base station means base station to which a terminal’s connection **may be** transferred.” (D.I. 54, ex. A at 7) (emphasis added) (internal quotation marks omitted) In support, defendants asserted that the IEEE 802.16e “Wireless MAN” draft specification provided the plain and ordinary meaning of “target base station” at the time of filing. (D.I. 73 at 29; D.I. 75, ex. 2 at 7) Defendants predicated their argument on a statement in the specification that

the present invention is also applicable to other wireless communication systems **using different air interfaces and/or physical layers**, for example, TDMA, CDMA, FDMA, WCDMA, OFDM, EV-DO, Mobile Wi-Max, Wi-Bro, etc.

(‘373 patent, 9:20-24) (emphasis added) The court disagrees. The majority of these terms refer specifically to air interfaces and physical layers (e.g., TDMA, CDMA, FDMA, WCDMA, and OFDM), and the remaining terms refer to systems (EV-DO, Mobile Wi-Max, and Wi-Bro) that define physical layer and air interface standards. The specification does not incorporate these standards by reference; therefore, there is no reason to read limitations from these standards into the claim language. Moreover, the Mobile Wi-Max definition discusses the mobile terminal **intending** to transfer the connection to a target base station, which is a wholly different architecture than that discussed in either the specification or defendants’ proposed construction.

terminal “may” be transferred to the target base station or the mobile terminal “will” be transferred to the target base station. (D.I. 54, ex. A at 7) The source base station uses the measurement report to identify the target base station from among various neighboring cells.²⁶ (‘373 patent, 6:19-23) Next, the source base station “transmit[s] a handover request to the target” base station. (‘373 patent, 6:26) “If the target [base station] allows the handover to be performed . . . the target [base station] may transmit a handover confirm message to the source [base station].” (‘373 patent, 6:30-33) The target base station passes access information to the source base station, which includes a dedicated preamble for a specific terminal to use in a random access procedure. (‘373 patent, 10:5-18) The specification does not discuss what happens if the handover does not occur, nor does the specification discuss alternative types of handovers.²⁷ Once the source base station identifies the target base station, and the target base station sends the handover confirm message, the last communication between the source base station and the mobile terminal is the sending of the handover command. (‘373 patent, 6:66-7:11; fig. 9, step S14) From that point forward, the mobile terminal communicates directly with the target base station to establish a connection. (‘373 patent, 7:8-54) For these reasons, the source base station determines that the mobile terminal will be transferred to the target base station.

²⁶ “[T]he UE (or terminal) (10) may transmit a measurement report to the source [base station] (12) by measuring a condition of a downlink physical channel for other cells.” (‘373 patent, 6:9-12)

²⁷ Defendants’ proposed language would apply to any nearby cells, because the mobile terminal **may be transferred** to any of these neighboring cells. The specification distinguishes the target base station from this larger group: “the measurement report includes a downlink physical channel condition for multiple cells including the cell of the target base station.” (‘373 patent, 8:2-4)

7. **The measurement report is used to determine:**²⁸ “The measurement report is used by the source base station to determine.” The court adopts plaintiff’s proposal. Defendants proposed that no construction is necessary, and argued that plaintiff “improperly inserts the words ‘by the source base station’ into this claim limitation.” (D.I. 54, ex. A at 7) Claim 17 depends on claim 16, which recites:

The method of claim 15, further comprising:

transmitting a measurement report to the source base station by measuring a condition of a downlink physical channel for other cells, the measuring performed periodically or upon an occurrence of an event.

(‘373 patent, 11:16-20) (emphasis added) The measurement report is transmitted to the source base station. Claim 17 recites:

The method of claim 16, wherein the measurement report is used to determine whether to perform a handover from a current cell to one of the other cells.

(‘373 patent, 11:21-23) Claim 17 incorporates the language of claim 16, which provides antecedent basis for the “measurement report” employed in the limitation of claim 17. Defendants argued that it is improper for plaintiff to introduce this language into the construction, because it involves reading a limitation from the specification. Here, the limitation that plaintiff seeks to introduce into the construction comes from the language of the claim itself.

8. **A radio protocol adapted to receive access information from a source base station after a handover request is accepted by the target base station and to perform a random access procedure with the target base station using the received access information, such that the access information is configured to permit the terminal to access the target base station:**²⁹ “Hardware and/or software

²⁸ Found in claim 17 of the ‘373 patent.

²⁹ Found in claim 24 of the ‘373 patent.

in the mobile terminal adapted to receive access information from a source base station after a handover request is accepted by the target base station and to perform a random access procedure with the target base station using the received access information, such that the access information is configured to permit the terminal to access the target base station, wherein the access information includes preamble information for the random access procedure; wherein the preamble information is a dedicated preamble used only for a specific terminal, and wherein the dedicated preamble is determined by the target base station.” The structure is found in the specification with reference to “radio protocol” and “radio interface protocol” and in figure 7. (‘373 patent, 1:46-2:24; 3:54-4:65; figs. 2-5, 7-9) Defendants failed to shift the § 112, ¶ 6 burden to plaintiff.³⁰ Section 112, ¶ 6 does not apply.³¹ Not indefinite.³²

9. Wherein the dedicated preamble is determined by the target base station:³³ Not indefinite.³⁴ This conclusion is supported by the specification. (‘373 patent, 12:10-25) The claim provides antecedent basis for “dedicated preamble” and “target base station.” (*Id.*) Elsewhere in the specification, the target base station passes information including a preamble to the mobile terminal:

[T]he target eNB (14) may transmit a handover confirm message to the source eNB (12) (S13). The handover confirm message may include information that may be necessary in the course of connecting the UE (10) to the target cell. Namely, the necessary information may include information used in the RACH which is used for performing a radio access procedure from the UE to the target eNB. For example, when the RACH is being used while the UE accesses to the target eNB, the UE may utilize a preamble which is selected from signatures contained in the UE.

³⁰ See *supra* note 3.

³¹ See *supra* note 4.

³² See *supra* notes 13-14.

³³ Found in claim 24 of the ‘373 patent.

³⁴ See *supra* note 14.

(‘373 patent, 6:32-41) Also, the preamble may be unique to a given mobile terminal, because the “target eNB (14) may receive the preamble of the UE. Since the target eNB (14) already allocates a signature used in the preamble to the UE in the use of handover, the UE can be identified by the preamble.” (‘373 patent, 7:30-33)

10. An Evolved Universal Mobile Telecommunication System (E-UMTS):³⁵

Not indefinite.³⁶

The ‘236 Patent

11. A reception module adapted to receive an uplink grant (UL Grant) signal from a base station on a specific message:³⁷ “Hardware and/or software in the user equipment that is capable of receiving an uplink grant signal from a base station on a specific message.” The structure is found in the specification with reference to figure 11. (‘236 patent, 15:44-16:36; fig. 11, item 1101) Defendants failed

³⁵ Found in claim 25 of the ‘373 patent.

³⁶ A person having ordinary skill in the art would have been aware of 3GPP activities, the UMTS specification, and work on the LTE standard. (D.I. 66 at 8) Defendants’ exhibit shows that as early as 2005, the 3GPP System Architecture Evolution: Report on Technical Options and Conclusions (“Evolution Report”) document was littered with a discussion of network evolution. For example, “[t]he objective of this feasibility study is to develop a framework for an **evolution** or migration of the 3GPP system.” (D.I. 75, ex. 1 at 9) (emphasis added) The Evolution Report employed terms such as “E-UTRA,” which stands for “evolved universal terrestrial radio access.” Other terms in the Evolution Report include “Evolved RAN,” “Evolved Packet Core,” “evolutions of Gr and Gp,” “Evolved VPLMN,” “evolved HPLMN,” “evolved Policy,” “evolved/extended Gx,” “evolved access system,” “evolved core network,” “evolved PDG,” “Evolved Architecture,” and so forth. (See generally, D.I. 75, ex. 1) A person having ordinary skill in the art would understand the scope of “[a]n Evolved Universal Mobile Telecommunication System (E-UMTS)” in claim 25 to mean a network system employing an evolution of the UMTS standard.

³⁷ Found in claim 7 of the ‘236 patent.

to shift the § 112, ¶ 6 burden to plaintiff.³⁸ Section 112, ¶ 6 does not apply.³⁹ Not indefinite.⁴⁰

12. A transmission module adapted to transmit data to the base station using the UL Grant signal received on the specific message:⁴¹ “Hardware and/or software in the user equipment that is capable of transmitting data to the base station using the UL Grant signal received on the specific message.” The structure is found in the specification with reference to figure 11. (‘236 patent, 15:44-16:36; fig. 11, item 1102) Defendants failed to shift the § 112, ¶ 6 burden to plaintiff.⁴² Section 112, ¶ 6 does not apply.⁴³ Not indefinite.⁴⁴

13. A Hybrid Automatic Repeat Request (HARQ) entity adapted to determine whether there is data stored in the Msg3 buffer when the reception module receives the UL Grant signal and the specific message is a random access response message, acquiring the data stored in the Msg3 buffer if there is data stored in the Msg3 buffer when the reception module receives the UL Grant signal and the specific message is the random access response message, and controlling the transmission module to transmit the data stored in the Msg3 buffer to the base station using the UL Grant signal received by the reception module on the specific message:⁴⁵ “Hardware and/or software in the user equipment

³⁸ See *supra* note 3.

³⁹ See *supra* note 4.

⁴⁰ See *supra* note 13.

⁴¹ Found in claim 7 of the ‘236 patent.

⁴² See *supra* note 3.

⁴³ See *supra* note 4.

⁴⁴ As above with “reception module,” the court adopts plaintiff’s construction.

⁴⁵ Found in claim 7 of the ‘236 patent.

that is capable of determining whether there is data stored in the Msg3 buffer when the reception module receives the UL Grant signal and the specific message is a random access response message, acquiring the data stored in the Msg3 buffer if there is data stored in the Msg3 buffer when the reception module receives the UL Grant signal and the specific message is the random access response message, and controlling the transmission module to transmit the data stored in the Msg3 buffer to the base station using the UL Grant signal received by the reception module on the specific message.” This construction is supported by the specification and the claims. (‘236 patent, 13:35-14:17; 15:50-16:36; fig. 9; fig. 11, item 1104) Defendants failed to shift the § 112, ¶ 6 burden to plaintiff.⁴⁶ Section 112, ¶ 6 does not apply.⁴⁷ Not indefinite.⁴⁸

14. A multiplexing and assembly entity used for transmission of new data:⁴⁹ “Hardware and/or software in the user equipment that is capable of transmitting new data.” This construction is supported by the specification and the claims. (‘236 patent, 14:12-17; 15:52-16:36; fig. 10, block 7; fig. 11, item 1105) Defendants failed to shift the § 112, ¶ 6 burden to plaintiff.⁵⁰ Section 112, ¶ 6 does not apply.⁵¹ Not indefinite.⁵²

15. Wherein the HARQ entity acquires the new data to be transmitted from the multiplexing and assembly entity if there is no data stored in the Msg3 buffer when the reception module receives the UL Grant signal on the specific message

⁴⁶ See *supra* note 3.

⁴⁷ See *supra* note 4.

⁴⁸ See *supra* notes 13-14.

⁴⁹ Found in claim 7 of the ‘236 patent.

⁵⁰ See *supra* note 3.

⁵¹ See *supra* note 4.

⁵² See *supra* notes 13-14.

or the received message is not the random access response message, and controls the transmission module to transmit the new data acquired from the multiplexing and assembly entity using the UL Grant signal received by the reception module on the specific message.⁵³ Wherein the HARQ entity transfers the data acquired from the multiplexing and assembly entity or the Msg3 buffer to a specific HARQ process of the one or more HARQ processes and controls the specific HARQ process to transmit the data acquired from the multiplexing and assembly entity or the Msg3 buffer through the transmission module.⁵⁴ Wherein, when the specific HARQ process transmits the data stored in the Msg3 buffer through the transmission module, the data stored in the Msg3 buffer is controlled to be copied into a specific HARQ buffer corresponding to the specific HARQ process, and the data copied into the specific HARQ buffer is controlled to be transmitted through the transmission module.⁵⁵ Wherein the UL Grant signal received by the reception module on the specific message is a UL Grant signal received on a Physical Downlink Control Channel (PDCCH).⁵⁶ Wherein the HARQ entity controls new data to be transmitted in correspondence with the received UL Grant signal received on the PDCCH.⁵⁷ Wherein the data stored in the Msg3 buffer is a Medium Access Control Protocol Data Unit (MAC PDU) including a user equipment identifier.⁵⁸ Wherein the UL Grant signal received on the specific message is either a UL Grant signal received on a Physical Downlink Control

⁵³ Found in claim 7 of the '236 patent.

⁵⁴ Found in claim 8 of the '236 patent.

⁵⁵ Found in claim 9 of the '236 patent.

⁵⁶ Found in claim 10 of the '236 patent.

⁵⁷ Found in claim 10 of the '236 patent.

⁵⁸ Found in claim 12 of the '236 patent.

Channel (PDCCH) or a UL Grant signal received on the random access response message.⁵⁹ Not indefinite.⁶⁰

The '481 Patent

16. A preamble generation unit configured to generate said preamble sequence by repeating a specific sequence, having a length (L), N times to generate a consecutive sequence having a length (N*L) and concatenating a single cyclic prefix (CP) to a front end of said consecutive sequence:⁶¹ “Hardware and/or software in the transmitter that is capable of performing the following algorithm: repeat a specific sequence, having a length (L), N times to generate a consecutive sequence having a length (N*L) and concatenate a single cyclic prefix (CP) to a front

⁵⁹ Found in claim 13 of the '236 patent.

⁶⁰ See *supra* note 14.

⁶¹ Found in claim 8 of the '481 patent.

end of said consecutive sequence.” Defendants failed to shift the § 112, ¶ 6 burden to plaintiff.⁶² Section 112, ¶ 6 does not apply.⁶³ Not indefinite.⁶⁴

17. A transmission unit configured to transmit, on a random access channel, said preamble sequence to a receiving side:⁶⁵ “Hardware and/or software in the transmitter capable of transmitting the preamble sequence on the random access channel to a receiving side.” The structure is found in the specification. (‘481 patent, 7:57-8:4; 11:46-54; 17:41-18:17 figs. 1, 22) Defendants failed to shift the § 112, ¶ 6 burden to plaintiff.⁶⁶ Section 112, ¶ 6 does not apply.⁶⁷ Not indefinite.⁶⁸

⁶² See *supra* note 3.

⁶³ The term “preamble generation unit” does not employ means-plus-function language. The structure described in the ‘481 patent is a computer-implemented algorithm. “To one of skill in the art, the ‘structure’ of computer software is understood through, for example, an outline of an algorithm, a flowchart, or a specific set of instructions or rules.” *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1298 (Fed. Cir. 2014), overruled by *Williamson v. Citrix Online, LLC*, 792 F.3d 1339 (Fed. Cir. 2015). In the briefs and at oral argument, defendants argued that *Williamson* overturned *Apple*, but defendants never addressed the substantive question raised by plaintiffs in their citation to *Apple*—whether an algorithm disclosed in the specification is sufficiently definite structure. (See, e.g., D.I. 73 at 8) *Williamson* overruled the strength of the presumption applied in *Apple*, but *Apple* remains on point for computer-implemented inventions that do not employ means-plus-function language. Plaintiff argued that figure 11 and the specification at column 11, lines 55-67, disclose an algorithm and that a person of ordinary skill in the art would recognize this algorithm as the structure corresponding to the functions described in relation to “preamble generation unit.” (See D.I. 65 at 15; D.I. 66 at ¶¶ 106-09) Defendants failed to demonstrate that a person of ordinary skill in the art would not recognize the algorithm as sufficiently definite structure. For this reason, the disclosed algorithm is sufficiently definite structure, and § 112, ¶ 6 does not apply. See *Williamson*, 792 F.3d at 1349.

⁶⁴ See *supra* note 13.

⁶⁵ Found in claim 8 of the ‘481 patent.

⁶⁶ See *supra* note 3.

⁶⁷ See *supra* note 4.

⁶⁸ See *supra* note 13.

18. The court has provided a construction in quotes for the claim limitations at issue. The parties are expected to present the claim construction consistently with any explanation or clarification herein provided by the court, even if such language is not included within the quotes.


United States District Judge