IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

OPTIS WIRELESS TECHNOLOGY, LLC, OPTIS CELLULAR TECHNOLOGY, LLC, UNWIRED PLANET, LLC, UNWIRED PLANET INTERNATIONAL LIMITED, AND PANOPTIS PATENT MANAGEMENT, LLC, Plaintiffs, v. APPLE INC., Defendant.	Civil Action No. 2:19-cv-66-JRG JURY TRIAL FILED UNDER SEAL

PLAINTIFFS' RULE 50(B) MOTION FOR JUDGMENT AS A MATTER OF LAW ON INFRINGEMENT OF U.S. PATENT NOS. 8,019,332, 8,411,557, AND 8,102,833

TABLE OF CONTENTS

Page

TABLE OF AUTHORITIES

Page(s)

Cases

Rules

Plaintiffs ("Optis") move pursuant to Rule 50(b) for judgment as a matter of law ("JMOL") of infringement for U.S. Patent Nos. 8,019,332 (Ex. 1, PX 2) ("the '332 Patent"), 8,411,557 (Ex. 2, PX 4) ("the '557 Patent"), and 8,102,833 (Ex. 3, PX 6) ("the '833 Patent").

I. APPLICABLE LAW

JMOL is appropriate when "a reasonable jury would not have a legally sufficient evidentiary basis to find for the party on that issue." Fed. R. Civ. P. 50; *Hodges v. Mack Trucks, Inc.*, 474 F.3d 188, 193 (5th Cir. 2006). "The jury's verdict must be supported by 'substantial evidence' in support of each element of the claims." *Hitachi Consumer Elecs. Co. v. Top Victory Elecs. Taiwan Co.*, No. 2:10-cv-00260, 2013 WL 5273326, at *1 (E.D. Tex. Sep. 18, 2013).

More than a mere scintilla of evidence is needed to present a question to the jury—the opposing party "must at least establish a conflict in substantial evidence on each essential element of their claim." *Goodner v. Hyundai Motor Co.*, 650 F.3d 1034, 1039 (5th Cir. 2011). "Substantial evidence is more than a scintilla, less than a preponderance, and is such relevant evidence as a reasonable mind might accept as adequate to support a conclusion." *N. Cypress Med. Ctr. Operating Co., Ltd. v. Aetna Life Ins. Co.*, 898 F.3d 461, 473 (5th Cir. 2018). "Even if the evidence is more than a scintilla, some evidence may exist to support a position which is yet so overwhelmed by contrary proof as to yield to a motion for judgment as a matter of law." *Rogers v. McDorman*, 521 F.3d 381, 391 (5th Cir. 2008) (citation modified).

II. OPTIS IS ENTITLED TO JMOL OF INFRINGEMENT

Optis brought a claim for infringement of '332 Patent claims 6 and 7 ("the '332 asserted claims"), '833 Patent claim 8 ("the '833 asserted claim"), '557 Patent claim 10 ("the '557 asserted claim"), '774 Patent claim 6 ("the '774 asserted claim"), and '284 Patent claims 14 and 27 ("the '284 asserted claims") (collectively "the Asserted Claims"). The evidence required a reasonable jury to find that Apple's accused 4G LTE iPhones, iPads, and Apple Watches (the "Accused Products") infringed

the Asserted Claims. Apple's non-infringement responses did not create a material dispute, and JMOL should be granted. This motion addresses the JMOL as related to the '332, '833 and '557 patents, and the concurrently filed JMOL #2 addresses issues related to the '774 and '284 patents as well as willfulness.

a. Optis Is Entitled To JMOL Because Each Asserted Claim Is Essential To Mandatory Portions Of The 4G LTE Standard Implemented By Apple In The Accused Products

First, JMOL should be granted for infringement because the Asserted Claims are essential to mandatory portions of the 4G LTE standard practiced by the Accused Products. As the Federal Circuit decision on remand stated: "[t]he asserted patents are standard-essential patents ('SEPs') that cover technology essential to the Long-Term Evolution ('LTE') standard." *Optis Cellular Tech., LLC v. Apple Inc.*, 139 F.4th 1363, 1368 (Fed. Cir. 2025); *see* Optis' Motion for New Trial at 1-3, filed concurrently.

The Federal Circuit further held that "[t]he asserted patents are ***undisputably FRAND-encumbered SEPs***, [citing Dkt. 585 at 9, this Court stating that the asserted patents 'are FRAND-encumbered SEPs'], so any royalty award had to be FRAND." *Optis Cellular Tech., LLC.*, 139 F.4th at 1376 n.8 (emphasis added). Apple has asserted "Plaintiffs are undisputedly obligated to license the patents-in-suit on FRAND terms." Dkt. 549 at 1; *see also* Dkt. 778, Ex. 5 [Apple Appellate Brief] at 63 ("in this SEP case, the reasonable royalty rate must reflect FRAND, including that the rate be 'non-discriminatory.'"). A FRAND obligation only exists when a patent is essential to the LTE standard under the governing ETSI policy:

> ***Standards often incorporate patented technology, also known as SEPs.*** When a standard incorporates ***SEPs, 'compliant devices necessarily infringe' claims that 'cover technology incorporated into the standard.'*** Ericsson, Inc. v. D-Link Sys., Inc., 773 F.3d 1201, 1209 (Fed. Cir. 2014) (emphasis in original). As a result, companies developing standard-compliant devices must obtain licenses from the owners of such SEPs. ETSI has created an Intellectual Property Rights ("IPR") Policy designed to ensure that patentees are fairly compensated for their contributions while fostering the standard's widespread adoption. To

> facilitate this balance, under the IPR policy, ***SEP owners commit to licensing their SEPs on FRAND terms***.

Optis Cellular Tech., LLC., 139 F.4th at 1369. The Federal Circuit's ruling, as well as the doctrines of judicial estoppel and the law of the case, each should have prevented Apple from challenging essentiality and hence infringement.

The evidence at trial also established that each of the Asserted Claims is essential to the 4G LTE standard. *See, e.g.*, Tr. 429:10-12 [Optis expert Madisetti] ('332, '833, '557 patents are standard essential):

- **'332 Patent:** [redacted]
- **'833 Patent:** Ex. 5, PX 2142.31-32 [TS 36.212] and PX 2142.34 [TS 36.212] (incorporating the '833 invention); [redacted]

[redacted]

- **'557 Patent:** Ex. 6, PX 1005.14 [TS 36.321], Ex. 7, PX 935.26-27 [TS 36.211], and Ex. 8, PX 940.113, .120 [TS 36.331] (incorporating the '557 invention); Tr. 485:23-487:20 [Madisetti] (the standards "are mandatory"; "there is a direct mapping between the claim 10 and the standard"; regarding '557 inventions, "[t]he proposal proposed something called the Zadoff-Chu CAZA[C] sequences. And the standard [TS 36.211 and TS 36.321] adopted the very same CAZA[C] Zadoff-Chu sequences, and also the use of the multiple groups, group A and group B."); Tr. 488:3-8 [Madisetti] (regarding the random access method, "the standard that I show below confirms that all the phones and all the products practice a random access procedure."); Tr. 488:15-489:3 [Madisetti] (for the receiving control information step, "section 5.2.2.9 confirms that you are receiving a control information in a block"); [redacted]

Apple's assertion of non-essentiality does not withstand scrutiny:

'833 Patent: Apple's expert argued that the "claim requires row by row mapping" whereas "the LTE specification requires column by column mapping." Tr. 947:3-9 [Wells]. But Dr. Wells does not dispute that the '833 asserted claim, the sections of LTE standard identified as relevant to the '833 patent, and the Accused Products all use "time-first mapping" which, as Dr. Madisetti explains, means row-by-row manner mapping. *See* § II.b.ii.1 (*infra*).

For the '332 and '557 patents, Apple's expert offered nothing more than the bare conclusion that the patents are not standard essential. Tr. 1017:4-9 [Lanning] ("Q. In your opinion, is either one of the patents you analyzed ['332 and '557 patents] essential to LTE? A. No, they're not.").

Apple's conclusory expert testimony is insufficient as a matter of law. *See, e.g.*, *Zelinski v. Brunswick Corp.*, 185 F.3d 1311, 1317 (Fed. Cir. 1999) ("[a conclusory] statement fails to provide the necessary evidentiary basis to support a claim that there is a genuine issue of material fact") (*citing Phillips Petroleum Co. v. Huntsman Polymers Corp.*, 157 F.3d 866, 876, 48 (Fed. Cir. 1998) (reasoning that conclusory expert testimony devoid of facts upon which the conclusions were reached fail to raise a genuine issue of material fact)); *Invitrogen Corp. Contech Lab'ys, Inc.*, 429 F.3d 1052, 1080 (Fed. Cir. 2005) ("A party does not manufacture more than a merely colorable dispute simply by submitting an expert declaration asserting that something is black when the moving party's expert says it is white; there must be some foundation or basis for the opinion.").

Apple failed to provide sufficient evidence upon which a reasonable jury could conclude the Asserted Claims are not standard essential.

Further, the evidence at trial established that each of the sections of the 4G LTE standard covered by the Asserted Claims is mandatory for compliance with the 4G LTE standard, and the accused Apple products practice those sections of the standard. *See, e.g.*, Tr. 937:21-23 [Apple expert Wells] ("Q. Now, just to be clear, does Apple practice, and by practice I mean use the LTE standard?

A. Yes, Apple uses the LTE standard."); Tr. 440:3-4 [Madisetti] ("Apple use[s] the LTE standard"); Ex. 9, PX 2052 at 5 [redacted] Tr. 417:14-418:7 [Apple 3GPP certification manager Stewart] ("it's important that we are able to meet the requirements that carriers set out and mandate to -- to sell on their network."); [redacted] *see also*:

- **'332 Patent:** Tr. 413:25-414:6 [Apple engineer Ramaprasad] (testifying with regards to the portions of the standard that implement the '332 asserted claims: "wherever the base station intends to -- to do the start position, Apple products conform to those LTE standards"); Tr. 1045:1-5 [Lanning] (admitting that "[i]n Apple's code, it will always go to the exact same starting point as what's specified" in the LTE specification and '332 patent); Tr. 440:21-441:3 [Madisetti] (part of the LTE standard that incorporates the '332 Patent "is mandatory…because it says -- uses the word 'shall'. 'Shall' means 'must' in the standards parlance"). The unreasonableness of Apple's position is underscored by Apple's concession in the UK that the EP equivalent with the same floor and module equations is standards essential. *See* Ex. 10 at ¶ 2 , [UK Court of Appeal Approved Judgment, Case No. CA-2022-000108, dated April 25, 2023] ("Apple accepted that the Patent is essential to the LTE 4G mobile telecommunications standard, and therefore infringed if valid."); *compare* '332 Asserted Claims with Ex. 11 (EU 2093953 claims 1 and 4 reciting same formula and values for A and D).
- **'833 Patent:** [redacted]

[redacted]

- **'557 Patent:** Tr. 487:14-20 [Madisetti] ("Q. The parts of the standard that you found with respect to the '557 Patent, are those mandatory or optional? A. They are mandatory because, again, we notice here that in these sections 5.1.2 and 5.2.2.9, it describes these as shall. Shall means mandatory or compulsory."); Tr. 488:15-497:3 [Madisetti] (Apple source code and testimony of Apple engineers establish that the Accused Products implement the portions of the 4G LTE standard that implement the '557 asserted claim).

Apple did not dispute that it implements the LTE standard, including the sections which implement the Asserted Claims. Rather, Apple argued that the "LTE standard mandates … how the messages have to be followed that are sent and received by the device, but it does not mandate what actually happens inside the device." Tr. 850:12-19 [Rodermund] ("Q. Who decides what happens inside an LTE-compliant device? A. The manufacturer of the device."); *see also* Tr. 875:13-25 [Apple engineer Josiam] ("the standard just tells us where – what – the format and when such transmissions need to occur, but it does – it may not even give us some idea like how we might want to go about engineering it. But we – the – the freedom to come up with designs such that the format – the signals we generate comply with the format is completely up to us"); Tr. 888:4-15 [Apple engineer Ramaprasad] ("3GPP specifications provides a broad guideline"). But none of Apple's witnesses disputed Dr. Madisetti's testimony on the implementation details based on Qualcomm source code.

As further addressed in detail below, none of the alleged implementation decisions in Intel chips identified by Apple diverted from the standard or the Asserted Claims. Apple's general statements about its freedom to implement the standard in its products as it chooses does not create a material dispute about infringement. No reasonable jury could find that the Asserted Claims are not

essential to mandatory portions of the 4G LTE standard practiced by the Accused Products, and JMOL of infringement should be granted.

b. Optis Is Entitled To JMOL Because Each Asserted Claim Is Practiced By The Accused Products

Second, Optis established that the Accused Products practice each of the Asserted Claims through presentation of expert testimony, source code, technical implementation documents, and admissions of Apple witnesses. This provides an independent basis upon which JMOL of infringement should be granted.

i. The '332 Patent

The '332 patent is directed to an inventive decoder in a user equipment (such as a phone) that searches for control message specific to the user equipment with a subset of all available search space. Ex. 1, PX2 at 2:7-10. This helps avoid excessive processing needed in conventional decoders that had to decode each and every search space in order to locate the control message for a user equipment. *Id.*, 2:4-7. The '332 patent teaches a unique way for the user equipment to find the starting position of the search space without undue collisions with search spaces assigned to other user equipment. *Id.*, 2:23-44.

[redacted]

1. '332 Claim 6

The evidence at trial established that Apple's Accused Products infringe each element of '332 claim 6, and JMOL of infringement should be granted:

6. A user equipment (UE) for decoding control information, the UE comprising: Optis established, and Apple did not dispute, that the Accused Products practice this element. [redacted]

A receiver for receiving a Physical Downlink Control Channel (PDCCH) from a base station at subframe k; and: Optis established, and Apple did not dispute, that the Accused Products practice this element. [redacted]

A decoder for decoding a set of PDCCH candidates within a search space of the PDCCH at the subframe k, wherein each of the set of PDCCH candidates comprises 'L' control channel

elements (CCEs): Optis established, and Apple did not dispute, that the Accused Products practice this element. [redacted]

Wherein the 'L' CCEs corresponding to a specific PDCCH candidate among the set of PDCCH candidates of the search space at the subframe k are contiguously located from a position given by using a variable of Yk for the subframe k and a modulo 'C' operation, wherein 'C' is determined as 'floor(N/L)',[1] wherein 'N' represents a total number of CCEs in the subframe k, and: Optis established that the Accused Products practice this element. [redacted]

[1] A modulo "C" operation returns the remainder after a number is divided by C; and a floor(N/L) operation provides as output the greatest integer less than or equal to N/L.

[redacted]

[redacted]

The claims contain no limitation precluding use of a shift to determine the value for "floor(N/L)" (or even operation), and there was no basis for Apple to import such a negative limitation into the claims. *See, e.g.*, *Albritton v. Acclarent, Inc.*, No. 3:16-cv-03340, 2019 U.S. Dist. LEXIS 58496, at *12 (N.D. Tex. Jan. 16, 2019) ("[I]t is generally improper to import negative limitations when construing a claim term, unless the patent contains an explicit disavowal.").

wherein Y_k is defined by: $Y_k=(A*Y_{k-1})$mod D, wherein A, and D are predetermined constant values: Optis established that the Accused Products practice this element. [redacted]

Apple disputed that the Accused Products use the modulo operation, arguing that the Accused Products [redacted]

[redacted] But again the limitation about **$\underline{Y_k}$** concerns its value of this variable and not specific operations, since an earlier limitation recites "from a position given by using a variable of Y_k for the subframe k." Apple does not dispute that its devices implement the right values, for otherwise its devices would not be able to operate on any networks. [redacted] Apple's non-infringement response therefore did not create a material dispute as to infringement of '332 claim 6, and JMOL should be granted.

2. '332 Claim 7

The evidence at trial also established that Apple's Accused Products infringe each element of '332 claim 7, and JMOL of infringement should be granted:

7. The method of claim 6, wherein A and D are 39827 and 65537, respectively.: Optis established that the Accused Products practice this claim. [redacted]

[redacted] That is all is required by the claim. [redacted]

No reasonable jury could find that Apple's Accused Products do not infringe the '332 asserted claims, and JMOL of infringement of the '332 Patent should be granted.

ii. The '833 Patent

The '833 patent teaches a mobile station that can efficiently and reliably transmit ACK/NACK signals, control signals other than the ACK/NACK signals and data signals. In particular, control signals and data signals are serially multiplexed with the control signals placed at a front part of the multiplexed signals and the data signals at a rear part of the multiplexed signals, the serially multiplexed control signals and data signals are mapped to a 2-D resource matrix in a time-first mapping manner, and the ACK/NACK symbols are then mapped to positions adjacent to reference symbols to

overwrite some of the mapped multiplexed signals from the last row of the matrix. *See* Ex. 3, PX6, Abstract. This manner of mapping improves the reliability of ACK/NACK and other control signals in transmission. *Id.*

[redacted]

1. '833 Claim 8

The evidence at trial established that Apple's Accused Products practice each element of '833 claim 8, and JMOL of infringement should be granted:

8. A mobile station for transmitting uplink signals comprising control signals and data signals in a wireless communication system, the mobile station comprising: Optis established, and Apple did not dispute, that the Accused Products practice this element. [redacted]

a processor serially multiplexing first control signals and data signals, wherein the first control signals are placed at a front part of the multiplexed signals and the data signals are placed at a rear part of the multiplexed signals: Optis established, and Apple did not dispute, that the

Accused Products practice this element. [redacted]

[redacted]

the processor mapping the multiplexed signals to a 2-dimensional resource matrix comprising a plurality of columns and a plurality of rows, wherein the columns and the rows of the 2-dimensional resource matrix correspond to single carrier frequency divisional multiple access (SC-FDMA) and subcarriers for each SC-FDMA symbol, respectively, wherein a number of columns of the 2-dimensional resource matrix corresponds to a number of SC-FDMA symbols within one subframe except specific SC-FDMA symbols used for a reference signal, and wherein the multiplexed signals are mapped from the first column of the first row to the last column of the first row, the first column of the second row to the last column of the second row, and so on, until all the multiplexed signals are mapped to the 2-

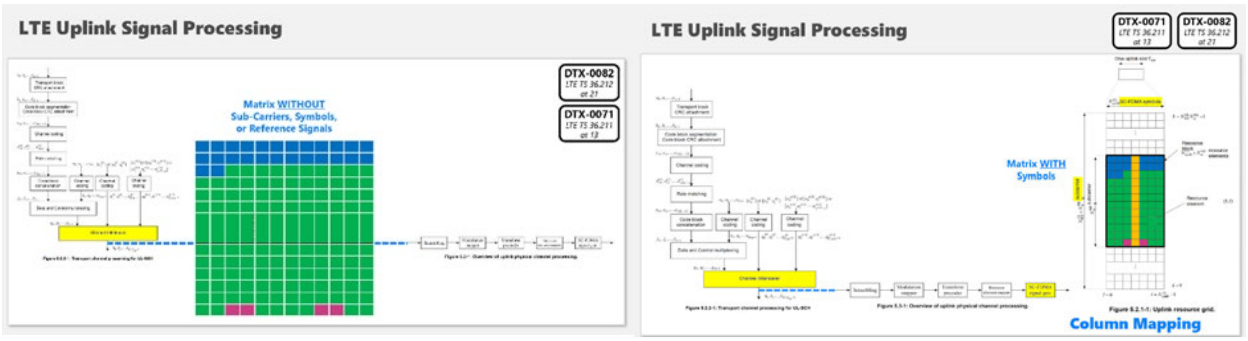
dimensional resource matrix; and: Optis established that the Accused Products practice this element. [redacted]

Apple did not dispute that a matrix that satisfies the first part of the claim limitation exists, but disputed whether the last wherein clause (annotated in red above) was met for that matrix. The disputed element requires the multiplexed signals be mapped in a "row by row" fashion. Tr. 947:5-9 [Wells] ("That claim requires row by row mapping. Here the LTE specification requires column by column mapping."); *see also* 943:11-944:17 [Wells].

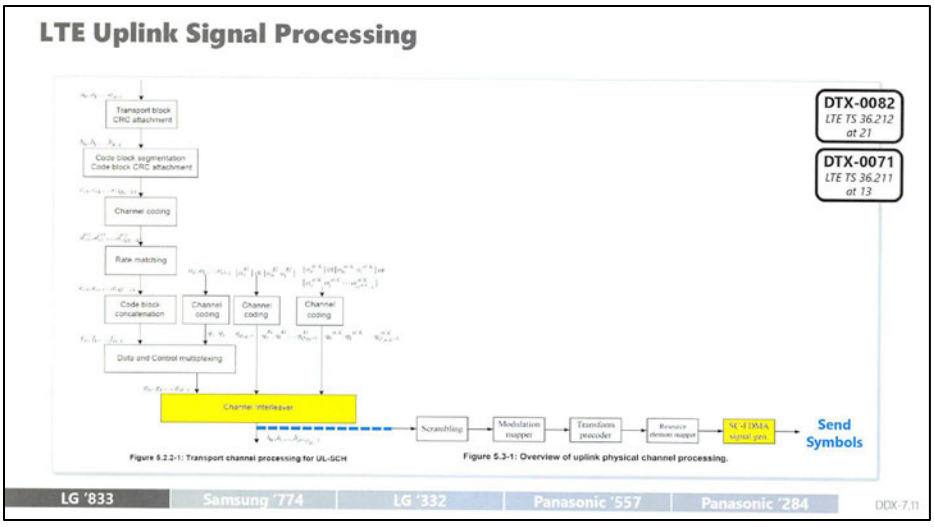
The parties do not dispute that the Accused Products apply a time-first mapping of the multiplexed signals as part of the channel interleaver step. [redacted]

[redacted]

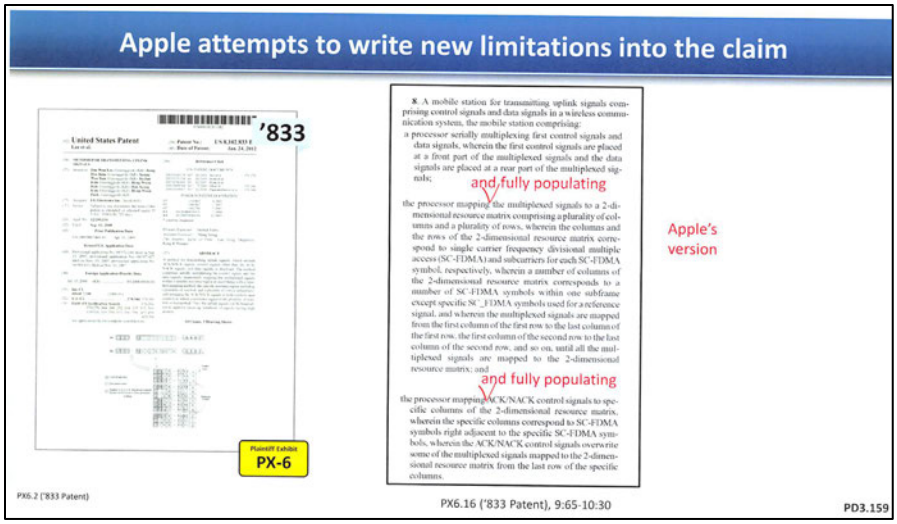
Dr. Wells argues, however, that the channel interleaving did not involve a matrix with the recited subcarriers, SC-FDMA symbols or references. *See, e.g.*, Tr. 953:6-954:3, 1006:3-4 [Wells] (arguing that time-first mapping relates "to a completely different matrix").



Dr. Wells' theory appears to be that there would be no SC-FDMA symbols until later in the process:



That argument injects unrecited limitations into the claim. Specifically, the claim just requires mapping of "multiplexed signals" (not SC-FDMA symbols) to a 2-D matrix, where the columns and the rows of the 2-D resource matrix "correspond to" (*i.e.*, functionally related to) SC-FDMA symbols and subcarriers of the SC-FDMA symbols respectively. The claims do not require the signal to have already been transformed into the corresponding SC-FDMA symbols at the time of mapping or that the matrix be fully populated with SC-FDMA symbols as part of the mapping.



Apple's non-infringement response, based on an incorrect claim construction, did not create a material dispute as to infringement of the '833 asserted claim.

the processor mapping ACK/NACK control signals to specific columns of the 2-dimensional resource matrix, wherein the specific columns correspond to SC-FDMA symbols right adjacent to the specific SC-FDMA symbols, wherein the ACK/NACK control signals overwrite some of the multiplexed signals mapped to the 2-dimensional resource matrix from the last row of the specific columns: Optis established, and Apple did not dispute, that the Accused Product practice this claim element. [redacted]

No reasonable jury could find that Apple's Accused Products do not infringe the '833 asserted claim, and JMOL of infringement of the '833 Patent should be granted.

iii. The '557 Patent

The asserted claim of the '557 patent relates to a method of efficient message over a random access channel (RACH). The method provides for multiple groups of sequences, each group associated with a different amount of data or reception quality, for use under different transmission

conditions. The claimed sequences have properties that allow mobile stations that select a respective sequence to have minimal interference. The method provides for more efficiency RACH access.

[redacted]

1. '557 Claim 10

The evidence at trial established that Apple's Accused Products infringe each element of '557 claim 10, and JMOL of infringement should be granted:

10. A random access method comprising: Optis established, and Apple did not dispute, that the Accused Products practice this element. [redacted]

receiving control information: Optis established, and Apple did not dispute, that the Accused Products practice this element. [redacted]

grouping a predetermined number of sequences that are generated from a plurality of base sequences into a plurality of groups, which are respectively associated with different amounts of data or reception qualities, by partitioning the predetermined number of sequences, in which sequences generated from the same base sequence and having different cyclic shifts

are arranged in an increasing order of the cyclic shifts; and randomly selecting a sequence from a plurality of sequences contained in one group of the plurality of groups: Optis established that the Accused Products practice this element both literally and under the doctrine of equivalents. [redacted]

[redacted]

[redacted] Apple's non-infringement argument is based on a legally incorrect claim construction.

First, the claims do not require the sequences be "prestored", and Apple's suggestion otherwise was improper (and waived) claim construction, adding limitations not found in the claim.

Second, the specification expressly discloses embodiments of the invention where the generating and selecting are done one at a time, with no pre-storing of pre-generated sequences. *See* Ex. 2, PX 4 at 17 ('557 Patent), 5:62-6:2 (signature selection section 111 may select a sequence "from the code sequences prepared in advance" or "select the CAZAC sequence number k and the number of shifts m … to generate a code sequence … every selection"), 6:3-5 ("signatures" are the same as "code sequences"); Tr. 1054:24-1055:4 [Lanning] (Apple's expert acknowledging disclosure in '557 Patent of embodiment of invention covering implementation in the Accused Products). Apple argued that the claims are directed to only the pre-generated embodiment and not the on-the-fly embodiment. Tr. 1326:3-12 [Apple's opening] ("The Intel and Qualcomm chips do it on the fly one-by-one. And that's exactly the opposite approach to the patent."). The active verbs of the steps, however, are "grouping" and "randomly selecting," with "generated" being the state. The recited steps do not require a specific way that the sequences are generated; nor do they require that grouping or partitioning be performed on already generated sequences as opposed to sequences that are expected to be generated at some point during operation. In other words, the claim recites "sequences that are generated" or "sequences generated," and not "sequences that have already been generated."

Apple's non-infringement response, based on improper claim construction, did not create a material dispute as to infringement of the '557 asserted claim.

wherein a position at which the predetermined number of sequences are partitioned is determined based on the control information, and a number of sequences contained in each of the plurality of groups varies in accordance with the control information: Optis established,

and Apple did not dispute, that the Accused Products practice this claim element. [redacted]

No reasonable jury could find that Apple's Accused Products do not infringe the '557 asserted claim, and JMOL of infringement of the '557 Patent should be granted.

III. CONCLUSION

For reasons stated above, the Court should grant JMOL on the '332, '883 and '557 patents.

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Respectfully submitted,

/s/ Andrew Strabone

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CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing document was served via electronic mail on all counsel of record on April 1, 2026.

/s/ Andrew Strabone
Andrew Strabone

CERTIFICATE OF AUTHORIZATION TO FILE UNDER SEAL

This is to certify that this document should be filed under seal because the document, and any exhibits, contain material covered by the Stipulated Protective Order approved and entered in this case on August 7, 2019 (Dkt. 57).

/s/ Andrew Strabone
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