

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ROKU, INC. and VIZIO, INC.,
Petitioners,

v.

ANCORA TECHNOLOGIES, INC.,
Patent Owner.

Case IPR2021-01406
U.S. Patent No. 6,411,941

**PETITIONERS' REPLY TO
PATENT OWNER'S RESPONSE**

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PETITIONERS' UPDATED EXHIBIT LIST

Exhibit No.	Description
1001	U.S. Patent No. 6,411,941 to Mullor et al. ("941 Patent")
1002	Image File Wrapper of U.S. Patent No. 6,411,941 ("941 Patent File History")
1003	Declaration of Andrew Wolfe, Ph.D. ("Wolfe Decl.")
1004	U.S. Patent No. 4,658,093 ("Hellman")
1005	U.S. Patent No. 5,892,906 ("Chou")
1006	U.S. Patent No. 5,933,498 ("Schneck")
1007	Scheduling Order, <i>Ancora Techs., Inc. v. TCT Mobile (US), Inc.</i> , No. 8:19-cv-2192 (C.D. Cal. Mar. 17, 2020) (ECF No. 34)
1008	In re: Coronavirus Public Emergency, Order Concerning Phased Reopening of the Court, General Order No. 20-09, United States District Court for the Central District of California, Aug. 6, 2020
1009	Civil Docket, <i>Ancora Techs., Inc. v. Sony Mobile Commc'ns AB</i> , No. 1:19-cv-01703 (D. Del.)
1010	Civil Docket, <i>Ancora Techs., Inc. v. Lenovo Grp. Ltd.</i> , No. 1:19-cv-01712 (D. Del.)
1011	Claim Construction Order, <i>Ancora Techs., Inc. v. Apple Inc.</i> , No. 4:11-cv-06357 (N.D. Cal. Dec. 31, 2012) (ECF No. 107)
1012	Final Claim Constructions of the Court, <i>Ancora Techs., Inc. v. LG Elecs., Inc.</i> , No. 1:20-cv-00034 (W.D. Tex. June 2, 2020) (ECF No. 69)
1013	Supplemental Claim Construction Order, <i>Ancora Techs., Inc. v. LG Elecs., Inc.</i> , No. 1:20-cv-00034 (W.D. Tex. Aug. 19, 2020) (ECF No. 93)
1014	Joint Claim Construction and Prehearing Statement, <i>Ancora Techs., Inc. v. TCT Mobile (US), Inc.</i> , No. 8:19-cv-2192 (C.D. Cal. July 17, 2020) (ECF No. 49)
1015	European Patent Application No. EP 0766165A2 ("165 Application")
1016	U.S. Patent No. 5,724,425 ("425 Patent")
1017	U.S. Patent No. 6,138,236 ("236 Patent")
1018	U.S. Patent No. 5,802,592 ("592 Patent")
1019	U.S. Patent No. 5,835,594 ("594 Patent")

Exhibit No.	Description
1020	Telephonic Markman Hearing, <i>Ancora Techs., Inc. v. TCT Mobile (US), Inc., et al.</i> , No. 8:19-cv-2192 (C.D. Cal. Oct. 15, 2020) (ECF No. 60)
1021	Telephonic Markman Hearing, <i>Ancora Techs., Inc. v. TCT Mobile (US), Inc., et al.</i> , No. 8:19-cv-2192 (C.D. Cal. Oct. 15, 2020) (ECF No. 69)
1022	Complaint, <i>Ancora Techs., Inc. v. TCL Corp., et al.</i> , No. 4:19-cv-00624 (E.D. Tex. Aug. 27, 2019) (ECF No. 1)
1023	U.S. Patent No. 5,734,819 (“Lewis”)
1024	File Wrapper of <i>Ex Parte</i> Reexamination of U.S. Patent No. 6,411,941, Control No. 90/010,560 (“560 Reexam File Wrapper”)
1025	Order Re: Joint Stipulation Re Stay Pending <i>Inter Partes</i> Review, <i>Ancora Techs., Inc. v. Vizio, Inc.</i> , No. 2:21-cv-08534 (C.D. Cal.) (ECF No. 78)
1026	Order Granting Joint Motion to Stay Pending <i>Inter Partes</i> Review, <i>Ancora Techs., Inc. v. Roku, Inc.</i> , No. 6:21-cv-00737 (W.D. Tex.) (ECF No. 33)
1027	Order Granting Joint Motion to Stay Pending <i>Inter Partes</i> Review, <i>Ancora Techs., Inc. v. Nintendo Co., Ltd., et al.</i> , No. 6:21-cv-00738 (W.D. Tex.) (ECF No. 46)
1028	Board Email Authorizing Motion For Additional Discovery, May 27, 2022
1029	Plaintiff’s Responsive Claim Construction Brief, <i>Ancora Techs., Inc., et al. v. LG Electronics, et al.</i> , Case No. 1:20-cv-00034-ADA (W.D. Tex., April 10, 2020) (ECF No. 50)
1030-1032	<i>Intentionally Left Blank</i>
1033	Declaration of Andrew Wolfe, Ph.D., in Support of Petitioners’ Reply to Patent Owner’s Response
1034	Transcript of the Deposition of Miki Mullor, July, 12, 2022 (Confidential)
1035	Transcript of the Deposition of David Martin, Ph.D., July 14, 2022
1036	Plaintiff’s Opening Claim Construction Brief, <i>Ancora Techs., Inc., et al. v. LG Electronics, et al.</i> , Case No. 1:20-cv-00034-ADA (W.D. Tex., March 20, 2020) (ECF No. 44)
1037	Denon DP-35F/DP-45F Instruction Manual, Nippon Columbia Co., Ltd.
1038	Excerpt from <i>Dictionary of Computing</i> , 4 th ed., Oxford University Press, 1996
1039	U.S. Patent No. 5,568,552 to Davis
1040	Guttman, B., et al., <i>Computer Security</i> , National Institute of Standards and Technology, 1995)

Exhibit No.	Description
1041	Kaliski, B., "PKCS #1: RSA Encryption," RFC 2313, The Internet Society, Network Working Group, March 1998
1042	U.S. Patent No. 5,724,425 to Chang et al.
1043	U.S. Patent No. 5,935,246 to Benson
1044-1049	<i>Intentionally Left Blank</i>

Patent Owner's responsive arguments all lack merit and should be rejected.

I. HELLMAN DISCLOSES THE “AGENT” LIMITATION (ALL CHALLENGED CLAIMS).

Patent Owner's “agent” arguments are based on a construction limiting that claim term to pure “*OS-level software*.” POR, 32; EX1035, 140:18-141:12. That construction is significantly narrower than what Patent Owner has advanced in more than a dozen proceedings involving the '941 patent over the past decade, where Patent Owner has all along argued—successfully, no less—that “agent” encompasses *any* type of software. EX1036, 18 (Patent Owner arguing that “‘agent’ means ‘a software program or routine’”); EX1012, 3 (court adopting Patent Owner's construction); EX1013, 36; EX1035, 33:17-36:14, 92:17-93:16 (Patent Owner's expert testifying that his interpretation of “agent” here is narrower than the construction applied in his infringement expert report in related litigation).

After having consistently and successfully advanced a broad construction of “agent” for infringement, Patent Owner cannot now advance an entirely new, and much narrower, construction in an attempt to evade Petitioners' obviousness challenge. *01 Communique Lab., Inc. v. Citrix Sys., Inc.*, 889 F.3d 735, 743 (Fed. Cir. 2018) (claims “may not, like a nose of wax, be twisted one way to avoid [invalidity] and another to find infringement” (cleaned up)).

Regardless, Patent Owner's construction fails on the merits. The plain and ordinary meaning of “agent” is not limited to software, let alone OS-level software,

and the specification does not refer to “agent,” an “operating system,” or “OS-level software” at all. EX1033, ¶¶1-9; EX2018, ¶128; EX1035, 133:22-135:3, 139:13-16; EX1034, 66:20-67:2. Even the extrinsic evidence cited by Patent Owner’s expert Dr. Martin does not refer to an OS-level agent. *See* EX2007-EX2010; EX1033, ¶10. Thus, as the Board correctly observed, Patent Owner’s construction “improperly imports” requirements “into the claims that are not supported by the evidence.” ID 10, 23.

To justify its narrow construction, Patent Owner resorts to a prosecution history disclaimer theory. POR, 36. While Patent Owner does not use the word “disclaimer,” its invitation for the Board to limit “agent” is obviously premised on a disclaimer theory. *GE Lighting Sols., LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014) (“[T]he specification and prosecution history only compel departure from the plain meaning in two instances: lexicography and disavowal.”); EX1035, 133:13-135:3, 139:13-140:1 (Dr. Martin acknowledging that his interpretation of “agent” is based primarily on the file history). But, as explained below, Patent Owner cannot—and has not even tried to—meet the “exacting”

standard to show clear and unmistakable disclaimer. *GE Lighting*, 750 F.3d at 1309. Thus, “agent’s” plain and ordinary meaning should prevail.¹

A. The Prosecution History Does Not Limit “Agent” to “OS-Level Software.”

Patent Owner suggests that the applicant all along considered an OS-level agent to be a critical part of the purported invention. But, when read in context, the file history tells a different story.

1. As originally filed, the claims recited “selecting a program” residing in memory and “setting up a verification structure”—the claims did not distinguish between the program being selected and that which was setting up the verification structure. EX1002, 14; EX1033, ¶13. Without such a distinction, the claims could have been incorrectly interpreted to require that the selected program *itself* set up the verification structure. Accordingly, the Examiner rejected the claims as non-enabling because they failed to recite a *separate* entity for performing the claimed setup step. EX1002, 116-117; EX1033, ¶13.

To overcome that rejection, the applicant replaced the phrase “setting up [a] verification structure” with “*using an agent to set up [a] verification structure,*”

¹ In a parallel proceeding, Petitioners contend that “agent” is indefinite, and Petitioners maintain this view. At the very least, however, the term should not be construed as narrowly as Patent Owner urges here.

thereby clarifying that something *other than* the selected program sets up the verification structure. EX1002, 137; *see also id.*, 127 (interview summary stating that “112 corrections” were discussed); *id.*, 135 (applicant stating that claims were amended “as agreed upon during the interview”); EX1033, ¶13. Patent Owner’s *own expert* in a related case agreed with this interpretation of the file history. EX2004, ¶9 (testifying that original claim 1 “included the term ‘program’ to refer to the software program to be verified” and that “‘agent’ was added to the claims ... to distinguish the software routine that wrote to the BIOS from the software program that was already claimed”).

There is no indication in the file history that “agent” was added to the claims to require OS-level implementation. In fact, there is no indication that the applicant ever regarded *the agent* as a critical feature. Rather, the applicant all along emphasized that *storing a license record in BIOS* is what distinguished the purported invention from the prior art. Pet., 16-17 (citing EX1002, 197-201); EX1033, ¶12. Even in *this* proceeding, Patent Owner emphasized that “[s]toring *the verification structure in BIOS* memory was a ‘key distinction’” over the art, and that the BIOS limitation “was significant to the ’941 Patent’s innovation.” POPR 35-36. One of the named inventors of the ’941 patent likewise testified at his deposition that setting up a verification structure in BIOS was “*the key highlight* of this technology.” EX1034, 74:4-75:16. Courts reviewing the ’941 patent’s file

history have also reached this same conclusion. EX1020, 18 (“In sum, the prosecution history demonstrates that the *focus of the claims is that the verification structure is in the erasable portion of the non-volatile memory* and uses the key in the separate non-erasable portion.” (emphasis added)). Thus, all agree that the purported novelty of the ’941 patent claims is storing a verification structure in BIOS, not using an “OS-level agent” to do so.

2. With that context in mind, neither of the two sets of isolated remarks in the file history cited by Patent Owner give rise to a disclaimer.

First, Patent Owner cites the applicant’s statement that “software license management applications, such as the one of the present invention,” are “operating system (OS) level programs.” POR, 34 (cleaned up). But this statement was made nearly *three months after* “agent” was added to the claims and does not purport to clarify or limit the meaning of that term. *AIA Eng’g Ltd. v. Magotteaux Int’l, S/A*, 657 F.3d 1264, 1277 (Fed. Cir. 2011) (no disclaimer where statements did not “clarify[y] the meaning” of disputed claim term by “expressly or implicitly defin[ing]” the term). Further, in making this statement, the applicant did not distinguish any prior art from the ’941 patent claims, let alone on the basis that the art lacks an OS-level agent. Rather, the applicant merely argued that a skilled artisan would not have combined two references—i.e., a BIOS-level software

reference (Ewertz) and an OS-level software reference (Misra)—*with each other*.

EX1002, 199.

At most, the quoted statement might be read to suggest that the *verifying software*—i.e., the software that performs the claim steps—is OS-level software. *Ancora Techs., Inc. v. Apple, Inc.*, 744 F.3d 732, 735-736 (Fed. Cir. 2014) (reading statements to suggest that the “*verifying software*” “would be implemented as application software, rather than lower-level system software”). But the verifying software is not itself the claimed agent; rather, the verifying software *uses* the agent to set up the verification structure. EX1001, 6:64 (claim 1 reciting “using an agent to set up a verification structure”); EX1033, ¶7; EX1035, 127:9-128:5 (Dr. Martin acknowledging that it would be “somewhat strange” for an agent to “use” itself). Thus, even if the verifying software must be OS-level software, the *agent* need not be.

Second, Patent Owner characterizes the Examiner’s Notice of Allowance as endorsing the view that the claims require an OS-level software agent. POR, 34. But like the applicant, the Examiner nowhere tied OS-level implementation to the agent, specifically. *See* EX1002, 213 (referring only to “licensed programs running at the OS level”). Regardless, “remarks in the examiner’s statement of reasons for allowance” are “insufficient to limit claim scope.” *Apple*, 744 F.3d at 737 (citing *Salazar v. Procter & Gamble Co.*, 414 F.3d 1342, 1345 (Fed. Cir. 2005)).

At best, the quoted statements are ambiguous, which hardly evidences a clear and unmistakable disclaimer (or lexicography for that matter). In fact, the ambiguity here makes the file history unhelpful in informing the meaning of “agent” even in the absence of disclaimer. *AIA Eng’g*, 657 F.3d at 1277 (prosecution history “not particularly helpful” given ambiguity in applicant’s statements). For that reason, moreover, Patent Owner’s cited cases are distinguishable, as each involved unambiguous statements clearly linked to a particular claim limitation. *Kaken Pharm. Co. v. Iancu*, 952 F.3d 1346, 1354 (Fed. Cir. 2020) (applicant made “unambiguous statement” during prosecution, which supported specification); *Rembrandt Wireless Techs., LP v. Samsung Elecs. Co.*, 853 F.3d 1370, 1376 (Fed. Cir. 2017) (applicant made “unambiguous statement” giving definitional weight to added limitation contemporaneously with amendment).

In the end, if the applicant had intended to claim “OS-level” software, as Patent Owner now alleges, it should (and could easily) have done so expressly.²

² Patent Owner also suggests that Dr. Wolfe did not consider the file history. POR, 57. That is false. *See* EX2026, 23:13-24:1; EX1033, ¶11.

B. Hellman Discloses an “Agent” Under the Correct Construction.

Patent Owner does not dispute that Hellman discloses the claimed “agent” under a construction permitting a *non*-OS-level software agent to set up a verification structure. Nor can it do so now—arguments not made in the Patent Owner Response are waived. *Microsoft Corp. v. Iron Oak Techs., LLC*, IPR2019-00106, Paper 21 at 2-3 (P.T.A.B. 2020).

In any event, such a challenge would fail. As Petitioners’ expert Dr. Wolfe explained, Hellman discloses an “agent” in the form of update unit 36, alone or with Hellman’s authorization and billing unit 13, which sets up a memory structure to verify a license. EX1003, ¶¶135-37; EX1033, ¶14; Pet., 38-39. That Hellman’s update unit (and authorization and billing unit) could interact with hardware does not defeat Petitioners’ obviousness challenge—as Dr. Martin acknowledged at his deposition, the claims do not “preclud[e] the use of hardware in setting up the verification structure.” EX1035, 131:14-19; *see also id.*, 122:12-123:10, 129:9-130:22; EX1033, ¶15.

C. Hellman Renders Obvious an “Agent” Even Under Patent Owner’s (Incorrect) Construction.

Patent Owner does not explain what “OS-level software” means, and its expert Dr. Martin articulated several ambiguous interpretations at his deposition. He seemed to suggest, though, that software is OS-level software if it leverages OS

resources while the operating system is running. EX1035, 102:5-9, 105:4-10. Even with this narrow understanding, the claims are still obvious. EX1033, ¶16.

1. A Skilled Artisan Would Have Implemented Hellman As Software.

Dr. Wolfe opined in his opening declaration, and reaffirmed at his deposition, that a skilled artisan would have been motivated to implement update unit 36 and authorization and billing unit 13 *in software* because that would have allowed the provider of the base unit and authorization and billing unit “to change the implementation logic” of the units over time, “without having to physically disassemble, modify, and reassemble” them. EX1003, ¶¶137B, 138B; Pet., 39; EX2026, 34:17-19, 35:9-18; EX1033, ¶¶17-18. Patent Owner does not meaningfully dispute these benefits. Instead, Patent Owner advances several arguments as to why, notwithstanding these benefits, a skilled artisan would not have implemented Hellman in software form. Each fails.

First, Patent Owner and Dr. Martin point to Hellman’s disclosure of a “switch 41,” a “wire,” “epoxy,” and “numerous ‘signals’” as apparent proof that “Hellman’s system requires particular hardware.” POR, 60; EX2018, ¶¶164, 172. As an initial matter, not all of these things need be hardware. EX2026, 35:8-15 (Dr. Wolfe testifying that Hellman’s switch can be “implemented in software”). In any event, that Hellman’s system uses *some* hardware—like any computer system, including the ’941 patent’s computer system—in no way suggests that Hellman’s

update unit (or authorization and billing unit) is limited to hardware. EX1033, ¶19; EX1035, 163:18-164:21 (Dr. Martin acknowledging that software could perform the EEPROM read and write functions described in Hellman). And, as Dr. Martin admitted, even if the claimed agent is limited to software, the claims do not preclude hardware from working with the software to set up the claimed verification structure. EX1033, ¶26; EX1035, 122:12-123:10, 129:9-130:22, 131:14-19.

Second, Patent Owner criticizes Petitioners for allegedly failing to identify “where a software version of Hellman’s update unit 36 would run, i.e.[,] what processor would run it.” POR, 60. But Dr. Wolfe testified at his deposition that Hellman’s system contains at least one processor on which software could run, including but not limited to the software player 42’s processor. EX2026, 31:23-25, 34:12-35:6, 35:4-6 (noting that Hellman “talks about a computer,” and that software would “be running on a computer system, which most likely would include a microprocessor”); EX1033, ¶¶20-21 (explaining that software player could run both the agent software and the licensed software). Patent Owner’s suggestion that Hellman’s base unit does *not* contain a processor that would run Hellman’s software strains credulity and conflicts with its own expert’s testimony. EX1035, 145:5-20.

Third, Patent Owner contends that implementing Hellman's update unit in software form "would come with a set of security risks" that would dissuade a skilled artisan from using a software implementation. POR, 61-62; EX2018, ¶¶169-75. But even to the extent that a software implementation would present some risk, a skilled artisan would have known how to easily account for such risk. The '941 patent does not discuss the need to protect software, thus suggesting that *any* technique known in the art could be used. EX1033, ¶¶22-23 (describing such techniques). Patent Owner errs by ignoring routine modifications based on such known techniques. *In re ICON Health & Fitness, Inc.*, 496 F.3d 1374, 1382 (Fed. Cir. 2007).

Fourth, Patent Owner suggests that a software implementation would not be needed given that Hellman already discloses a hardware implementation. POR, 62. Petitioners dispute this contention. But even so, this argument ignores "[t]he normal desire of artisans to improve upon what is already generally known" in the art, which "can provide the motivation" to make a proposed modification. *In re Ethicon*, 844 F.3d 1344, 1351 (Fed. Cir. 2017). That a hardware implementation of Hellman's update unit 36 may be effective does not negate Dr. Wolfe's rationale for using a software implementation.

Finally, Patent Owner contends that Dr. Wolfe improperly opined as to what a skilled artisan "could do" rather than what a skilled artisan "would do." POR, 59-

61. Not so. Dr. Wolfe unequivocally opined that a skilled artisan would have recognized that the update unit 36 “*would* have been implemented by a software routine[.]” EX1003, ¶137 (emphasis added); *see also id.*, ¶¶137A, 138-138B; EX2026, 34:17-19; EX1033, ¶¶24-25.

2. A Skilled Artisan Would Have Implemented Hellman As OS-Level Software.

Petitioners could not have anticipated Patent Owner’s never-before urged “OS-level” construction. Even still, the Petition asserts that Hellman’s update unit (and authorization and billing unit) would be implemented as software, which would encompass OS-level software under Patent Owner’s own logic. EX1033, ¶27.

Dr. Wolfe explained at his deposition that Hellman “talks about a computer,” and computers in the early 1980s—when Hellman was filed—and throughout the 1990s used operating systems. EX2026, 31:21-32:23; *see also id.*, 34:1-2 (“A general purpose desktop computer, like an ordinary PC, would usually have an operating system.”); EX1033, ¶¶28-29. Patent Owner ignores this testimony, but its own expert agrees with it. EX2018, ¶73 (Dr. Martin acknowledging that “Windows NT, Windows 95, DOS, Macintosh OS, and Unix-based operating systems” were “operating systems that were ... known”); EX1035, 99:17-100:1, 109:9-17.

And, as Hellman's Figure 8 illustrates, update unit 36 uses system resources to provide the system with access to data stored in non-volatile memory. In particular, it verifies the software package 17 license using data stored in non-volatile memory and, if verified, permits the software to be executed using software player 42. EX1033, ¶30. Both the software package and the player would run at the OS level, under Patent Owner's understanding of "OS level," if implemented as software. Indeed, both are stored in the same base unit as the update unit, and this architecture thus strongly suggests that Hellman's update unit 36 is in fact implemented as OS-level software under the criteria set forth by Dr. Martin. *See supra* Section I.C; EX1035, 100:8-22, 101:19-102:4, 102:5-9, 105:4-10; EX1033, ¶¶30-31.

Patent Owner's *own* arguments bolster such a conclusion. To support its construction of "agent," Patent Owner points to a passage in the '941 patent stating that the agent uses "E2PROM manipulation commands" to add, modify, and remove data in non-volatile memory. POR, 35 (citing EX1001, 1:65-2:9); EX2018, ¶128. Thus, Patent Owner seems to suggest that a program accessing and modifying data in non-volatile memory is necessarily one that operates at the OS level. EX1033, ¶32.

But as Dr. Martin acknowledged, Hellman *also* accesses and modifies data stored in its EEPROM. EX1035, 148:6-22, 152:8-153:22, 156:7-157:1, 163:18-

164:2; EX1033, ¶¶33-35. Indeed, in a related litigation, Patent Owner emphasized that using an OS-level agent to write to BIOS was well known. In the litigation, Patent Owner cited a white paper authored by one of the named inventors of the '941 patent allegedly describing “a specific embodiment of the invention” for the proposition that the agent writes license data to EEPROM/BIOS using a *standard BIOS function* (referred to as DMI Function 52h) known in the art. EX1029, 5; EX1035, 174:20-175:4, 178:21-179:14 (acknowledging that writing data structures to EEPROM was known as of 1998). Dr. Martin testified here that the entity using such a function is OS-level software. EX1035, 175:5-176:9.

Thus, under Patent Owner's and its expert's own logic and admissions, Hellman's software, which performs EEPROM/BIOS-writing functions, would be implemented at the OS level. EX1033, ¶¶36-41 (additionally explaining that Hellman's software would need to be implemented at the OS level to run after startup under Patent Owner's and Dr. Martin's logic).

II. THE COMBINATION OF HELLMAN AND CHOU DISCLOSES THE “VERIFICATION STRUCTURE” LIMITATION (ALL CHALLENGED CLAIMS).

Patent Owner argues in passing that Petitioners “improperly cite the same elements of Hellman for the distinct ‘memory of the BIOS’ and ‘verification structure’ limitations of claim 1.” POR, 62. But the Petition makes clear that the claimed “verification structure” is Hellman's memory structure defined by hash

values, whereas the claimed “memory of the BIOS” is Hellman’s non-volatile memory 37 including BIOS motivated by Chou. Pet., 37-39; EX1003, ¶¶133-50. A memory structure is not the same as the memory in which the structure resides. EX1033, ¶¶42-44.

The Board should again reject Patent Owner’s implicit argument that the verification structure must be a specific *type* of data structure. ID, 25. Neither Patent Owner nor its expert says what that structure is, let alone provides supporting evidence. And, as Patent Owner itself acknowledged, *any* “data structure” (e.g., a database) established to accommodate a license record qualifies as a “verification structure.” POPR, 32; EX1001, 6:17-21. Hellman’s memory structure—i.e., a table of M values stored in memory—is indisputably such a data structure. EX1033, ¶¶44-46.

Finally, Patent Owner also suggests that Hellman’s memory structure would “be nothing more than a nebulous collection of hash values that do not exist.” POR, 63. This assertion is misplaced. The memory structure stores data in a well-defined structure (e.g., a table), and the hash values *do* in fact exist—as the Board correctly noted—because Hellman’s memory structure stores data at addresses *defined by* hash values, which are used to interrogate non-volatile memory. ID, 25; EX1033, ¶47; EX1035, 152:8-153:22.

III. PETITIONERS HAVE SHOWN A MOTIVATION TO COMBINE HELLMAN WITH CHOU AND SCHNECK (ALL CHALLENGED CLAIMS).

A. Petitioners’ Motivations to Combine Are Neither “Logically Flawed” Nor Incomplete (All Challenged Claims).

1. Patent Owner’s Arguments Are Based on an Incorrect Characterization of Petitioners’ Proposed Combination.

Patent Owner’s rebuttals rely on a strawman—i.e., that Petitioners are proposing *replacing* Hellman’s memory with Chou’s BIOS memory—and ignore the actual proposed combination of implementing Hellman’s *existing* EEPROM as BIOS memory. *Compare* Pet., 28 (“A POSA would have found it obvious to provide a BIOS in the computer ([Hellman’s] base unit 12) and to store the BIOS *in the* non-volatile memory 37”), *with* POR, 52 (“Petitioners assert four motivations that would allegedly result in the use of Chou’s BIOS memory *in place of* Hellman’s non-volatile memory 37”). This mischaracterization of Petitioners’ actual motivations infects all four of its rebuttals.

1. Patent Owner’s first rebuttal alleges that Petitioners fail to use Chou’s BIOS memory “in place of” Hellman’s memory 37. POR, 52. But what the Petition actually states is that a skilled artisan would have been motivated to use Hellman’s existing non-volatile memory 37, disclosed in one embodiment as an EEPROM, “for storing the BIOS, as well as license information described in Hellman.” Pet., 30. Chou provides the suggestion to use Hellman’s EEPROM—the same EEPROM that Hellman already discloses as storing license information—to store

that BIOS. *Id.*, 30-31; EX1033, ¶48. For example, Chou discloses BIOS memory 15 that is implemented using a “BIOS EEPROM,” EX1005, 3:23-24, 3:52-55, 4:6-7, and describes “[r]ecent changes in the computer BIOS memory storage devices [that] permit writing data to the BIOS,” *id.*, 1:63-64.

This implementation of BIOS memory allows for “password protection *within the same memory* which stores the BIOS routines.” *Id.*, 1:65-66 (emphasis added). Configuring Hellman’s EEPROM in this way results in memory that stores both the BIOS and the license information, which discourages tampering with Hellman’s license information. *See* EX1002, 51; Pet., 30; EX1033, ¶¶48-49.

Patent Owner argues that Chou does not discuss tamper-prevention, POR, 52, but this is irrelevant because the Petition relied on Chou’s use of a BIOS to further *Hellman*’s purpose of tamper-prevention, Pet., 30; EX1004, 4:22-26. Chou explains storing security information, such as passwords, with BIOS routines “prevent[s] a thief from bypassing security measures which might have been implemented” on other types of memory devices. EX1005, 3:55-60; EX1033, ¶¶49, 56. Specifically, Chou teaches that any attempt to access sensitive information would result in disabling the bootup process of the computer. EX1003, ¶115. Disabling the bootup process is a form of preventing tampering with a computer because it discourages improperly accessing sensitive information in BIOS. *Id.*, ¶56. Chou’s disclosure also contradicts Patent Owner’s statement that

“[n]one of the other evidence” supports “stor[ing] information in the BIOS.” POR, 52-53.

2. Patent Owner represents that Dr. Wolfe’s deposition testimony conflicts with the design-choice reasoning for combining the references. *Id.*, 52. But Dr. Wolfe’s testimony is consistent with his declaration. EX1033, ¶¶51-53. In his declaration, Dr. Wolfe explained that Hellman discloses a few memory modules, including the non-volatile memory 37 (EEPROM), as well as permanent memory 31 and temporary memory 28, but no other EEPROM modules. EX1003, ¶114; EX1033, ¶51. And he explained that Chou describes EEPROM as advantageous for storing BIOS. EX1003, ¶113. Thus, given the limited number of memory options in Hellman’s base unit and the explicit teaching of only a single EEPROM, Dr. Wolfe concluded that a person skilled in the art would have used Hellman’s EEPROM to store BIOS. *Id.*, ¶114; EX1033, ¶51.

Dr. Wolfe’s deposition testimony does not contradict this conclusion. When asked whether computers could have more than one EEPROM, Dr. Wolfe explained that a computer cobbled together with parts “from multiple suppliers” could result in components each with their own EEPROM. EX2026, 40:6-11. But Hellman teaches only a *single* EEPROM (with other memory units), and so it is irrelevant whether *other* computer systems contain more than one EEPROM. In any event, Dr. Wolfe clarified at his deposition that for a computer from a single

supplier, such as “a Compaq computer, where they had already chosen components for you,” only *one* EEPROM would be common. EX2026, 40:12-15; EX1033, ¶52; EX1035, 82:9-21 (Dr. Martin likewise testifying that single-EEPROM computers likely existed in 1998).

3. Patent Owner rehashes its argument that the combination lacks motivation because Chou does not teach tamper-prevention. For the reasons noted above, this is not the proper characterization of Petitioners’ motivation to combine Hellman and Chou—it is *Hellman*, not Chou, that discusses the goal of discouraging tampering. Pet., 30; EX1004, 4:22-26.

4. Finally, Patent Owner mischaracterizes Petitioners’ motivation to combine as the economic and operational efficiencies of using “Chou’s EEPROM BIOS *in place of* Hellman’s non-volatile memory 37.” POR, 54 (emphasis added). What the Petition actually states is that there are efficiencies in using Hellman’s non-volatile memory rather than adding any additional EEPROM modules. Pet., 32; EX1033, ¶¶57-58.

2. The Petition Provides Motivation for Storing Hellman’s Value “M” in Hellman-Chou’s modified BIOS EEPROM.

Patent Owner also alleges that the proposed combination assumes the “entirety of Chou’s EEPROM chip constitutes ‘memory of the BIOS’ such that storing [it] in EEPROM is the same as storing it in BIOS memory.” POR, 55. That is false. As discussed above, the proposed combination does not rely on the

entirety of Chou's memory to teach storing data in BIOS, but rather uses Hellman's EEPROM (which already stores licensed uses) as the BIOS memory. EX1033, ¶¶60-61.

Patent Owner's contortion of the proposed combination is an apparent effort to analogize it to previously rejected positions in prior proceedings. POR, 55-56. But Petitioners' positions are plainly different from those in the proceedings cited by Patent Owner. In Samsung's IPR2020-01184, Patent Owner alleges that the Board criticized a proposed combination because of a failure to explain why the "entirety of EEPROM 250a" is a "non-volatile memory of BIOS." *Id.*, 55. But that combination lacked Chou's explicit disclosure of BIOS memory—i.e., an EEPROM that stores BIOS routines. Patent Owner also alleges that the Examiner in a reexamination distinguished programs in a BIOS from other programs in a non-volatile memory that also contains BIOS. *Id.*, 56. This, again, is unrelated to Chou, which explicitly teaches storing sensitive information, such as passwords, in the same BIOS memory that also stores the BIOS. EX1005, FIG. 7, 7:14-17; EX1033, ¶61. And to the extent that Patent Owner argues that the proposed modification would result in utilizing only a portion of Hellman's EEPROM to store the BIOS, that is irrelevant to the proposed combination because of Chou's teaching. EX1033, ¶61.

B. Storing Hellman’s “Authorization A” in “Non-Volatile Memory 37” Would Not Render Hellman Inoperable for its Intended Purpose (Claims 3, 8-9, 14).

Claims 3, 8-9, and 14 recite an encrypted license record, and Petitioners’ proposed modification to Hellman, in view of Schneck, relies on “forming an encrypted license record in the form of authorization A.” Pet., 55; *see also id.*, 48. Patent Owner argues that this modification is improper because: (1) Hellman’s encrypted authorization A could not be incremented or decremented to reflect the number of uses, and (2) authorization A includes “values [] H, R, N, and SK” but not “value M.” POR, 64-65. However, Patent Owner does not address Hellman’s unlimited-use embodiment and the relationship between Hellman’s M, N, and A values.

1. Hellman makes clear that software can be licensed for an “unlimited number of uses,” such that M is a value representing infinity. EX1004, 10:55-57. As Dr. Martin acknowledged, in that instance, M would not need to be incremented or decremented. EX1035, 157:2-18. Rather, Hellman’s update unit would be configured to recognize this infinite value and not change it after the software has been used. EX1004, 10:55-65; EX1033, ¶¶62-63. Patent Owner’s Response ignores the unlimited-use embodiment completely and instead decries the use of authorization A because it would be “impossible” to “increment or decrement the number of remaining uses.” POR, 65. Accordingly, at least in

Hellman's unlimited-use embodiment, using authorization A in place of M would not render Hellman inoperable for its intended purpose. As the Petition explains, Schneck supports this modification. Pet., 44-45; EX1033, ¶64.

2. Patent Owner also argues that authorization A does not include M. POR, 65. But Hellman discloses a scenario where M may be set to zero and further makes clear that the value N is summed with M to form "a signal representing $M+N$... so that $M+N$ replaces the old number M ... as the number of uses of the software package which have been paid for." EX1004, 5:65-66, 10:9-13. Dr. Wolfe explains that in this scenario, the new value of M is equal to N (the number of requested uses). EX1033, ¶63; EX1003, ¶170; EX1035, 154:19-155:9. In an unlimited-use embodiment, this new value is represented in authorization A as N—thus, authorization A includes the licensed record for an unlimited number of uses.

IV. PATENT OWNER'S "SECONDARY INDICIA" ARGUMENTS LACK MERIT.

Patent Owner's evidence of purported industry praise and selectively chosen license agreements does not demonstrate nonobviousness at least because Patent Owner fails to show a nexus between that evidence and the claims. "[I]n order to accord substantial weight to secondary considerations of non-obviousness, 'the evidence of secondary considerations must have a nexus to the claims[.]'" *Teva Pharm. Int'l GmbH v. Eli Lilly & Co.*, 8 F.4th 1349, 1360 (Fed. Cir. 2021). Patent Owner does not allege that the evidence is entitled to a presumption of nexus;

Patent Owner thus must “prove nexus by showing that the evidence of secondary considerations is the ‘direct result of the unique characteristics of the claimed invention.’” *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373-74 (Fed. Cir. 2019). Patent Owner had the burden to show this nexus, *WMS Gaming Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1359 (Fed. Cir. 1999), and its failure to do so is thus fatal.

A. The AMI-Based Evidence Is Not Probative of Nonobviousness.

Contrary to Patent Owner’s contentions, POR, 66-68, neither the AMI press release nor the associated Alliance Agreement is persuasive evidence of nonobviousness.

1. The AMI Press Release Is Self-Serving Marketing.

In the named inventor’s own words, the AMI press release is nothing more than a “marketing piece” describing a “business relationship” between Patent Owner’s predecessor and AMI to garner publicity. EX1034, 48:13. Notably, the inventor testified that he had a part in authoring the press release. *Id.*, 49:2-4. The self-serving nature of such puffery thus makes it non-probative of industry praise. *In re Cree, Inc.*, 818 F.3d 694, 702 (Fed. Cir. 2016) (press releases non-probative because “self-serving statements from researchers about their own work do not have the same reliability” as praise from industry).

Fatally, nothing in the press release directly links the technology described therein to *the claims* of the '941 patent. Rather, the press release includes a general statement relating to BIOS-based security products allegedly “described in US Patent 6,411,941,” and obliquely refers to security enhancements related to encryption keys and BIOS. But Patent Owner has made no attempt to prove that these statements are objectively true, let alone that AMI entered into the agreement as a “direct result of the unique characteristics of the *claimed* invention.” *Fox Factory*, 944 F.3d at 1373-74. For example, the release does not mention an “agent,” much less an OS-level agent, which Patent Owner now alleges is a defining characteristic of the purported invention. The Board should thus not give any weight to the AMI press release.

2. [REDACTED]

Patent Owner also relies on [REDACTED]
[REDACTED], which purportedly undergirds the AMI press release. But [REDACTED], like the press release, is [REDACTED]

[REDACTED]. [REDACTED]
itself says nothing about the underlying motivation of the parties, let alone whether

[REDACTED] is related to the purportedly novel features of the claimed invention.

Indeed, the [REDACTED] requires [REDACTED]

[REDACTED]. EX2029, 3. Patent Owner does not grapple with these facts at all, let alone attempt to actually establish nexus.

Tellingly, Patent Owner also neglected to mention that [REDACTED]

[REDACTED]
[REDACTED]. EX1034, 37:8-38:10, 45:3-13, 46:18-47:5. Thus, notwithstanding the purported hype surrounding the collaboration, [REDACTED]
[REDACTED]. Such evidence is thus hardly probative of nonobviousness.

B. The Patent Licenses Likewise Lack Probative Value of Nonobviousness.

Evidence demonstrating nexus between licenses and the claimed invention should show that the licensing program was successful “because of the merits of the claimed invention” and not “because they were entered into as business decisions to avoid litigation, because of prior business relationships, or for other economic reasons.” *In re Antor Media Corp.*, 689 F.3d 1282 (Fed. Cir. 2012). Considered in its totality, Patent Owner’s licensing activity is, at best, inconclusive as evidence of non-obviousness.

In its Response, Patent Owner relies on [REDACTED] cherry-picked license agreements with [REDACTED]. But Patent Owner’s analysis fails to take into account [REDACTED] *additional* license agreements that were subsequently produced in response to Petitioners’ motion (Papers 25, 29). [REDACTED] At least some of these additional licenses [REDACTED]

to the licensees. For example, in two of the proceedings in which Hellman and Chou were used to prove invalidity, and where [REDACTED] [REDACTED] were [REDACTED] and [REDACTED]—[REDACTED] [REDACTED] recited in the [REDACTED] agreements. [REDACTED]. Thus, any probative value from [REDACTED] licenses is [REDACTED] by the [REDACTED] licenses. At the very least, the presence of the [REDACTED] suggests that the [REDACTED] licenses were not based on the merits of the claimed invention, and instead were based on some other economic reasons specific to each licensee.

When viewed in its totality, the weak and conflicting “secondary indicia” do not prove nonobviousness—especially in the face of the strong obviousness case presented in the Petition and confirmed above.

V. CONCLUSION

Patent Owner’s rebuttal arguments lack merit and the Board should hold the challenged claims obvious.

Respectfully submitted,
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**CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME
LIMITATION, TYPEFACE REQUIREMENTS, AND TYPE STYLE
REQUIREMENTS**

This Petitioners' Reply complies with the type-volume limitation of 5,600 words, comprising 5,596 words, excluding the parts exempted by 37 C.F.R. § 42.24(c).

2. This Petitioners' Reply complies with the general format requirements of 37 C.F.R. § 42.6(a) and has been prepared using Microsoft® Word 2017 in 14-point Times New Roman.

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CERTIFICATION OF SERVICE (37 C.F.R. § 42.6(e))

The undersigned hereby certifies that on July 22, 2022, true and correct copies of the foregoing **PETITIONERS' REPLY TO PATENT OWNER'S RESPONSE** and **Exhibits 1029, 1033-1043, and 1050-1054** were served electronically via e-mail in their entireties on the following counsel for Patent Owner:

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