

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.;
SAMSUNG ELECTRONICS AMERICA, INC.,
Petitioner,

v.

EMPIRE TECHNOLOGY DEVELOPMENT LLC,
Patent Owner.

Case No. IPR2024-00897
U.S. Patent No. 8,565,331

**PATENT OWNER'S AUTHORIZED RESPONSE TO
DIRECTOR REVIEW REQUEST**

I. INTRODUCTION

Petitioner's Request for Director Review should be denied because the Board (1) did not issue an erroneous *sua sponte* claim construction as its understanding of the claim language was correct and (2) did not misapprehend the Haustein grounds since it fully considered and rejected Petitioner's contention.

II. THE BOARD'S UNDERSTANDING OF THE CLAIM LANGUAGE WAS CORRECT

The Board did not issue a *sua sponte* construction of the "subsequently received signals" limitation of claim 1 because it found "an explicit construction of that term is not necessary." Decision 12. Nevertheless, for three reasons explained below, the Board correctly found that "the plain meaning of 'subsequently received signals,' refers to signals received after updating the channel estimate." *Cf. id.* at 17.

First, the plain language of the claims compels the Board's "plain meaning." A claim "requires an ordering of steps when the claim language, as a matter of logic or grammar, requires that the steps be performed in the order written, or the specification directly or implicitly requires' an order of steps." *Mformation Techs., Inc. v. Research in Motion Ltd.*, 764 F.3d 1392, 1398-99 (Fed. Cir. 2014) (quoting *TALtech Ltd. v. Esquel Apparel, Inc.*, 279 F. Appx. 974, 978 (Fed. Cir. 2008)); see also *Function Media, LLC v. Google, Inc.*, 708 F.3d 1310, 1320 (Fed. Cir. 2013) (finding a claim that recites "processing" an "electronic advertisement" necessarily indicates that "the creation of the ad must happen before the processing begins").

Here, grammar and logic plainly require claim 1[f] to occur after claim 1[e]. Claim 1[f] recites “decoding subsequently received signals over the communications channel using the updated estimate of the channel matrix,” and claim 1[e] requires “generating an updated estimate of the channel matrix based, at least in part, on the replicated data.” Ex-1001 at 16:3-7. Decoding subsequently received signals using the updated estimate of the channel matrix necessarily means that generating an updated estimate of the channel matrix must have happened before decoding begins.

In *Function Media*, the Court addressed the sequencing of “creating” and “processing” steps in a claim and found that “the creation of the ad must happen before the processing begins” because “[i]f ‘processing’ included ‘creating, the act of processing would have been performed on the inputted information,” not the electronic advertisement. 708 F.3d at 1320. Similarly, here the claim language rules out the possibility of the steps happening at the same time because subsequently received signals cannot be decoded using *the* updated estimate of the channel matrix unless *an* updated estimate has first been generated. *See id.*; *see also Wi-Lan, Inc. v. Apple, Inc.*, 811 F.3d 455, 462 (Fed. Cir. 2016) (“The text of the asserted claims requires randomizing the modulated data symbols before combining them....Subsequent use of the definite articles ‘the’ or ‘said’ in a claim refers back to the same term recited earlier in the claim.”).

Petitioner’s cited case is inapposite. Request at 6-7 (citing *Dionex Softron*

GmbH v. Agilent Techs., Inc., 56 F.4th 1353, 1359 (Fed. Cir. 2023)). There, the “forwarding the piston” limitation appeared in a whereas clause and thus it was not unreasonable to find that a previously recited “determining” step could occur at the same time. *See Dionex* 1356-57, 1359. Here, unlike in *Dionex*, the limitations of claim 1 “inherently require an order-of-steps,” *Mformation Techs.*, 764 F.3d at 1400, and there is no whereas clause suggesting otherwise.

Second, the specification supports the Board’s reading. Petitioner recognizes that Figure 7 “largely repeats the claim language verbatim,” Request at 8, but complains that Figure 7 is an example, and the specification generally states that the steps “may be performed ... in a different order.” Ex-1001, 9:45-49. Petitioner’s problem is that the specification never provides or suggests another example relevant to the express language in claim 1[f] that recites an order. Although Figure 1 shows receiver 172 and channel estimator 178 in parallel, decoder 174 is not shown in parallel, confirming that the step of “decoding subsequently received signals” occurs after updating the channel estimate. Ex-1001, Fig. 1.

Third, the prosecution history confirms the Board’s understanding. During prosecution, claim 1[f] originally appeared in dependent claim 9 and the remaining limitations of issued claim 1 were part of claim 8. On May 8, 2013, the PTO maintained a rejection of claim 8 but objected to claim 9, stating “that such ‘updated estimate of the channel matrix’ *is later used* by the recitation of claim 9. That is why

the rejection to claim 9 is now withdrawn and objected as indicated above.” Ex-1004, 0267 (emphasis added). On June 27, 2013, applicant amended claim 8 to include claim 9, confirming that claim 1[f] follows claim 1[e]. *Id.* at 274-78.

Indeed, the only other “signal” recited in claim 1 appears in the preamble: “A method of decoding a *signal* transmitted over a communications channel.” Ex-1001, 15:42-43 (emphasis added). Taking the claim language in the context of the prosecution history requires decoding subsequently received *signals* after the other steps have been performed. The steps in claim 1[a] and 1[c] do not receive signals, and Petitioner’s argument to the contrary is incorrect. Request at 6; *see also Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006) (“[C]laims are interpreted with an eye toward giving effect to all terms in the claim.”).

III. THE BOARD FULLY ADDRESSED, AND WAS JUSTIFIED IN REJECTING, THE HAUSTEIN GROUNDS

The Board fully considered and correctly rejected Petitioner’s argument that “there are additional non-pilot, data only” signals “subsequent to retransmission 307” taught or suggested by Haustein. *Cf.* Request at 10. The Board also did not “focus too much on ‘express disclosures’ of Haustein,” *cf. id.* at 11, because Haustein simply has no disclosures on this issue. Instead, the Board addressed Dr. Valenti’s testimony about a “slowly fading channel” having “payload-only data” transmissions and found “there is insufficient reason to believe” Dr. Valenti’s testimony because it is neither suggested by Haustein nor has any factual support.

Decision at 18-19; *see also* Updated Guidance for Making a Proper Determination of Obviousness, 89 Fed. Reg. 14449, 14453 (Feb. 27, 2024) (“[T]he Federal Circuit has made it clear that an expert’s conclusory opinion about a matter relevant to the obviousness inquiry may be unavailing unless accompanied by factual support.”).

Petitioner claims that Dr. Valenti relied on Figure 2B, but the facts are otherwise. *Cf.* Request at 13. Figure 2B shows a retransmission of the first signal, not any subsequently received signals. Ex-1005 ¶ 59; Figs 2A, 2B. This is fatal to Petitioner’s argument, and Petitioner’s weak attempt to contest this point requires conflating the distinct concepts of *a signal* with *symbols*. *See* Request at 11 (citing Pet. at 22). In fact, Dr. Valenti generated *his own image* (which Petitioner again submits) to create a supposed “subsequently received signal” with a “slowly fading channel” having “payload-only data.” Request at 12; Ex-1002 ¶ 115.

The Board was correct to consider this testimony to be improper gap-filling and not something “the art reasonably suggests,” 89 Fed. Reg. at 14450, because Haustein does not support Dr. Valenti’s contention of what is claimed to happen during a “coherence time.” *See* Ex-1005 ¶ 3 (“The required number of pilot or reference signals however depends on the coherence time as well as coherence bandwidth.”). The Board was justified in rejecting Dr. Valenti’s testimony because Haustein does not suggest “a slowly fading channel” or a signal “being devoid of pilot symbols.” Decision at 19.

Dated: February 10, 2025

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE WITH 37 C.F.R. § 42.24

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that the present paper complies with the 5-page limit set forth in the Board email authorizing the filing of this paper.

Dated: February 10, 2025

/s/ Nathaniel Browand

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), the undersigned certifies that, on February 10, 2025, a true and correct copy of Patent Owner's Authorized Response to Director Review Request was served via electronic mail upon the following counsel of record:

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