

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE, INC.,

Petitioner,

v.

APEX BEAM TECHNOLOGIES, LLC,

Patent Owner.

Patent No. 11,139,944

Filing Date: February 20, 2021

Issue Date: October 5, 2021

Inventor: Alireza Babaei

Title: VALIDATION OF DOWNLINK CONTROL INFORMATION

PATENT OWNER'S PRELIMINARY RESPONSE

Case No. IPR2025-00907

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EXHIBIT LIST

Exhibit No.	Description of Document
2001	Scheduling Order, Dkt. 40, <i>Apex Beam Techs. LLC v. Apple Inc.</i> , Case No. 6:24-cv-00223-ADA (W.D. Tex. June 18, 2025)
2002	Apex Beam Technologies LLC's Infringement Contentions and P.R. 3-1 and 3-2 Disclosures in <i>Apex Beam Techs. LLC v. Apple Inc.</i> , Case No. 6:24-cv-00223-ADA (W.D. Tex.), dated May 27, 2025
2003	Complaint, Dkt. 1, <i>Apex Beam Techs. LLC v. Apple Inc.</i> , Case No. 6:24-cv-00223-ADA (W.D. Tex. April 29, 2024)

I. INTRODUCTION

On April 29, 2025, Apple, Inc. (“Apple” or “Petitioner”) filed a Petition requesting *inter partes* review of claims 1-20 (the “Challenged Claims”) of U.S. Patent No. 11,139,944 (the “’944 Patent”) (APPLE-1001). Paper 2 (“Petition” or “Pet.”). The declarations of Dr. Narayan Mandayam (APPLE-1003) and Dr. Friedhelm Rodermund (APPLE-1008) accompanied the Petition. On May 16, 2025, the Board issued a Notice of Filing Date Accorded for the Petition and set the time for filing patent owner’s preliminary response. Paper 5.

Apple’s Petition fails as to Grounds 1 and 2B because Apple fails to support its assertion that at least two references within the proposed combination qualify as prior art under 35 U.S.C. 102(a)(1): 3GPP-38.213-CR and 3GPP-38.212-CR. Apple relies on these references in every ground. Having failed to advance sufficient evidence to find that either reference is prior art to the ’944 Patent, Apple cannot show a reasonable likelihood that it would prevail with regard to any of the Challenged Claims.

Apple’s Petition fails as to Ground 2 because Apple fails to show that the Zhang reference discloses critical limitations of the Challenged Claims. Indeed, Apple advances only the most cursory argument that limitation 1.2.5 is even rendered obvious, “[i]nasmuch as validating DCI based on individual ones of [1.2.2], [1.2.3], [1.2.4] and [1.2.5] has been shown above to have been obvious to a POSITA,

validating DCI based on the complement of all four also would have been deemed obvious.” Apple tacitly acknowledges that Zhang includes no explicit disclosure of a “complement of all four” limitations, and makes no attempt to identify any. Moreover, Apple apparently recognizes the weakness of its broadside obviousness argument, as it does not even attempt to articulate a specific rationale for a POSITA to arrive at a “complement of all four” limitations based on Zhang alone, instead focusing in Ground 2B on a combination of Zhang with 3GPP-38.213-CR (which is not prior art).

Institution should be denied.

II. THE '944 PATENT

The '944 Patent issued from U.S. Patent Application No. 17/180,746, filed February 20, 2021, which is a continuation of U.S. Patent Application No. 17/084,933 (now U.S. Patent No. 10,965,434), and which claims priority to Provisional Application No. 62/931,099, filed November 5, 2019. '944 Patent at Cover.

The Petition assumes that the '944 Patent is entitled to an effective filing date of November 5, 2019, and advances no argument disputing the '944 Patent's priority claim. Pet. at 2.

III. THE RELEVANT ALLEGED PRIOR ART

A. 3GPP-38.213-CR

3GPP-38.213-CR is a draft change request concerning the 38.213 standard. Apple alleges that 3GPP-38.213-CR was publicly available “[a]s early as October 14, 2019 and no later than November 3, 2019.” Apple relies on the premise that this change request was distributed to a 3GPP_TSG_RAN_WG1@LIST.ETSI.ORG email list used by certain 3GPP delegates on November 3, 2019, and was subsequently made available. The earlier October date which Apple asserts is based on a 3GPP meeting which did not even concern the 3GPP-38.213-CR document itself. Apple fails to show, or even substantively address, whether a document sent to that 3GPP email list on November 3 was available to *non-3GPP members* by *November 5, 2019*.

To qualify as a printed publication, “the key inquiry is whether or not a reference has been made ‘publicly *accessible*.’” *In re Klopfenstein*, 380 F.3d 1345, 1348 (Fed. Cir. 2004); *Acceleration Bay, LLC v. Activision Blizzard Inc.*, 908 F.3d 765, 772 (Fed. Cir. 2018) (public accessibility “has been called the touch-stone” in determining whether a reference qualifies as a printed publication). (emphasis added). “A reference will be considered publicly accessible if it was ‘disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art exercising reasonable diligence, can locate it.’”

Blue Calypso, LLC v. Groupon, Inc., 815 F.3d 1331, 1348 (Fed. Cir. 2016) (quoting *Kyocera Wireless Corp. v. Int’l Trade Comm’n*, 545 F.3d 1340, 1350 (Fed. Cir. 2008)).

In addressing searchability of documents hosted on even a prominent standards website, the Federal Circuit has held that the “dispositive question is whether interested users of the [website] could have located [references] through reasonable diligence.” *M & K Holdings, Inc. v. Samsung Elecs. Co.*, 985 F.3d 1376, 1381 (Fed. Cir. 2021) (citing *Samsung Elecs. Co. v. Infobridge Pte. Ltd.*, 929 F.3d 1363, 1369 (Fed. Cir. 2019); *Voter Verified, Inc. v. Premier Election Sols., Inc.*, 698 F.3d 1374, 1381 (Fed. Cir. 2012)). In the context of documents hosted on websites, “[i]ndexing is no more or less important in evaluating the public accessibility of online references than for those fixed in more traditional, tangible media.” *Voter Verified*, 698 F.3d at 1380. Moreover, “in the absence of other evidence, such as evidence that the reference was actively distributed to the public or actually retrieved by members of the public, indexing is a useful inquiry to evaluate public accessibility.” *Blue Calypso*, 815 F.3d at 1349, n.9. The Federal Circuit has found that “[i]ndexing only by title and author’s name did not amount to the references being ‘either cataloged or indexed in a meaningful way.’” *Id.* at 1349. On the other hand, “[i]ndexing by subject offers meaningful assurance that an ordinarily skilled artisan, exercising reasonable diligence, will be able to locate a particular reference

among the many volumes stored in a library. *Id*; see also *M & K Holdings*, 985 F.3d at 1382 (“A factor relevant to public accessibility is whether a repository indexes its documents or otherwise categorizes them *by subject matter*.”) (emphasis added).

Even if 3GPP-38.213-CR was emailed to certain 3GPP delegates on November 3, 2019, Apple has simply failed to advance any evidence that it became available to the public within one day, November 4, before the November 5 priority date of the '944 Patent.

Apple does not appear to contend that the email solely to 3GPP delegates itself rendered the document publicly accessible. Pet. at 4. Rather Apple relies on its expert’s opinion for the position that “an email addressed consistent with APPLE-1009 and its attachment (i.e., APPLE-1006) would have been both automatically uploaded via 3GPP’s email exploder to 3GPP working group delegates, and also automatically posted to the 3GPP email archive for restriction-free access by the general public, with uploading and posting of the email (i.e., APPLE-1009) and its attachment (i.e., APPLE-1006) both occurring on the November 3, 2019 date of the APPLE-1009 email, immediately after the APPLE-1009 was transmitted.” Pet. at 5.

But there is no evidence that any allegedly “automatic” upload of the email was *immediate*, or otherwise within the next day. While Apple cites to a listserv archive of emails sent to the 3GPP_TSG_RAN_WG1@LIST.ETSI.ORG address, that archive only shows that the November 3, 2019 email is available *now* – not that

it was uploaded within a day of when the original email was actually sent. Pet. at 5-6. Indeed, beyond its expert's conclusory statements that emails were uploaded to a listserv repository "automatically," neither Apple nor its expert addresses the time it took for such "automatic" uploads to be completed at all. *Id.*; *see also* APPLE-1008, [43]-[63] and [72]-[80]. While Dr. Rodermund discusses inconsistencies in the "received" timestamps across emails later added to the listserv, he does nothing to establish that the time an email to the 3GPP list was received corresponds with the time it was uploaded. *Id.*, [47]-[50]. Dr. Rodermund's uncorroborated opinions that uploads were "automatic" and "immediate" are thus not sufficient basis to find that upload of 3GPP-38.213-CR occurred prior to November 5, 2019. *See TypeRight Keyboard Corp. v. Microsoft Corp.*, 374 F.3d 1151, 1159 (Fed. Cir. 2004) ("[C]orroboation is required of any witness whose testimony alone is asserted to invalidate a patent."). At most, Dr. Rodermund's screenshots show that the email to which 3GPP-38.213-CR were uploaded *at some point* after November 3, 2019 – not that they were uploaded before November 5, 2019.

Apple also cites to metadata purportedly establishing that 3GPP-38.213-CR was originally created on November 2, 2019. That does not suggest that the email in which the document was sent was immediately uploaded either.

Finally, while Apple argues that the subject matter of 3GPP-38.213-CR was discussed at a 3GPP meeting in China during October 2019, this is irrelevant. Apple

itself concedes that metadata shows that the printed publication, on which the Petition is necessarily based, was not created until at Nov. 2, 2019. Pet. at 6. Whether the subject matter of the document or some other text was discussed during those proceedings has no bearing on the date that the specific 3GPP-38.213-CR document, on which the Petition relies, became publicly accessible.

Because Apple has failed to advance any evidence for its position that the email containing 3GPP-38.213-CR was uploaded to a listserv archive by November 5, 2019, it cannot show that the reference is prior art to the '944 Patent.

B. 3GPP-38.212-CR

Apple alleges that 3GPP-38.212-CR was publicly available “[a]s early as October 14, 2019 and no later than November 1, 2019.”

Apple advances substantively identical arguments for the public availability of this reference as for 3GPP-38.213-CR, addressed above. But Apple fails to show that the document was publicly accessible by November 5, 2019 for the same reasons.

Apple shows, at most, that 3GPP-38.212-CR was sent to an email list solely including 3GPP delegates – not members of the public – on November 1, 2019, and was uploaded to an email list archive at some point afterwards. Apple advances no evidence that the upload actually occurred before November 5, 2019. Apple cannot show that this reference is prior art to the '944 Patent either.

IV. LEVEL OF ORDINARY SKILL IN THE ART

For the purposes of this Preliminary Response only, Patent Owner utilizes Petitioner's proposed level of skill in the art—"a bachelor's degree in electrical engineering, computer engineering, computer science, or a similar field, along with two years of experience designing or developing wireless networks, including long-term evolution LTE/4G or 5G new radio (NR) cellular technology. Additional years of experience could substitute for an advanced-level degree (and vice versa)." Pet. at 10 (citation omitted).

V. ARGUMENT

A. Ground 1 Relies on Both 3GPP-38.213-CR and 3GPP-38.212-CR

In Ground 1, Apple asserts obviousness of Claims 1-20 over a proposed combination including both 3GPP-38.213-CR and 3GPP-38.212-CR. Apple relies on its "3GPP combination," including 3GPP-38.213-CR and 3GPP-38.212-CR, for every Challenged Claim. But because Apple cannot show that either reference is prior art to the '944 Patent, it cannot show a reasonable likelihood of invalidity. Institution should therefore be denied.

B. Ground 2A

- 1. Apple Fails to Show that Zhang Renders Obvious Ground 2A “validating the DCI, wherein the validating ... is not based on comparing the one or more first bits with the first sequence in response to the DCI having a second format; and is not based on the one or more first bits in response to the one or more first bits indicating a configuration index”**

The '944 Patent, Claim 1, recites two negative limitations in the context of validating a DCI: wherein the validating “is **not** based on comparing the one or more first bits with the first sequence in response to the DCI having a second format; and is **not** based on the one or more first bits in response to the one or more first bits indicating a configuration index.” (emphasis added.) Apple fails to show that Zhang discloses either limitation or renders them obvious.

Apple merely asserts that the DCI validation methods discussed in the Petition for prior limitations satisfy both negative requirements. Apple then goes on to argue that “inasmuch as validating DCI based on individual ones of [1.2.2], [1.2.3], [1.2.4] and [1.2.5] has been shown above to have been obvious to a POSITA, validating DCI based on the complement of all four also would have been deemed obvious.” Pet. at 64-65.

First, Apple does not address the validation in the context of any “DCI having a second format” whatsoever. The only format Apple addresses in the context of Zhang’s DCI validation is a “first DCI format” which Apple maps onto Zhang’s

discussion of “DCI format 1_0.” Pet. at 63. Apple does not even attempt to show that Zhang discloses a process that does **not** compare the one or more first bits (which Apple maps to the HARQ process number) to a DCI having a second format. And contrary to Apple’s unsupported assertions, Zhang apparently contemplates comparisons with a separate DCI formats (e.g., DCI format 1_1 and DCI format 0_0) in special fields for downlink and uplink “SPS and UL grant Type 2 scheduling activation,” in the same tables that Apple cites. *See* APPLE-1004, 10:9-20, 10:47-57, Tables 10.2-1 and 10.2-2.

In essence, Apple argues that a claim requiring “A and not B” is satisfied by a reference’s discussion of “A” alone, while entirely failing to address the discussion of “B” in the same sections. Apple’s unsupported position that process “A” does not necessarily entail performance of process “B” cannot carry its burden to show the absence of that process.

Second, Apple’s arguments regarding limitation 1.2.5 requiring that validating “is not based on the one or more first bits in response to the one or more first bits indicating a configuration index,” suffers from similar defects. While Apple asserts that the cherry-picked disclosures cited for the prior limitations do not require a configuration index, it simply does not address whether any validation is based on one or more first bits (e.g., a HARQ process number) indicating a configuration index. This is tantamount to a position that negative limitations do not need to be

proven if they are not expressly disclosed, as required in the portions of Zhang that Apple cites for prior limitations (which Apple asserts, but does nothing to show). Apple again fails to carry its burden to show obviousness on a limitation-by-limitation basis.

Apple's only substantive rationale for this limitation asserts that "[i]nasmuch as validating DCI based on individual ones of [1.2.2], [1.2.3], [1.2.4] and [1.2.5] has been shown above to have been obvious to a POSITA, validating DCI based on the complement of all four also would have been deemed obvious to a POSITA comparison of a HARQ process number." This argument merely confirms the logical fallacy in Apple's argument, and the deficiency of the Petition. Apple's position boils down to an assertion that if a limitation says that A, B, and C are true and is silent on D, then it is automatically obvious to a POSITA that D is false. Apple advances no legal or factual support for this, and its position that the other limitations of the claim are disclosed does not free it of its burden to articulate a specific basis for obviousness.

Having failed to substantively address these negative limitations, let alone articulate a valid rationale for a POSITA arrive at them based on Zhang's explicit disclosure, Apple cannot show any reasonable likelihood that it would prevail as to any claim. The Petition should therefore be denied.

C. Ground 2B Relies on Both 3GPP-38.213-CR and 3GPP-38.212-CR

Ground 2B, asserting obviousness of Claims 1-20, relies on 3GPP-38.213-CR in combination with Zhang. Apple only relies on 3GPP-38.213-CR in the context of limitations 1.2.4 and 1.2.5, discussed above, tacitly acknowledging the weakness of its obviousness arguments over Zhang alone.

But as with Ground 1, Apple fails to show that 3GPP-38.213-CR is prior art to the '944 Patent, and institution should be denied for the same reasons.

VI. CONCLUSION

As discussed above, Apple fails to show that references of its combination are prior art to the '944 Patent, or otherwise disclose or render obvious critical limitations of the '944 Patent, and therefore cannot show that its proposed combination renders obvious any claims of the '944 Patent. The Board should, therefore, deny the Petition.

Respectfully submitted,

Dated: August 18, 2025

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CERTIFICATE OF WORD COUNT

The undersigned hereby certifies that the portions of the above-captioned PATENT OWNER'S PRELIMINARY RESPONSE specified in 37 C.F.R. § 42.24 has 2,603 words in compliance with the 14,000 word limit set forth in 37 C.F.R. § 42.24. This word count was prepared using Microsoft Word for Office 365.

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